

AIRFIX

magazine

NOVEMBER 1968

FOR PLASTIC MODELLERS

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MONTHLY



**IN
THIS
ISSUE**

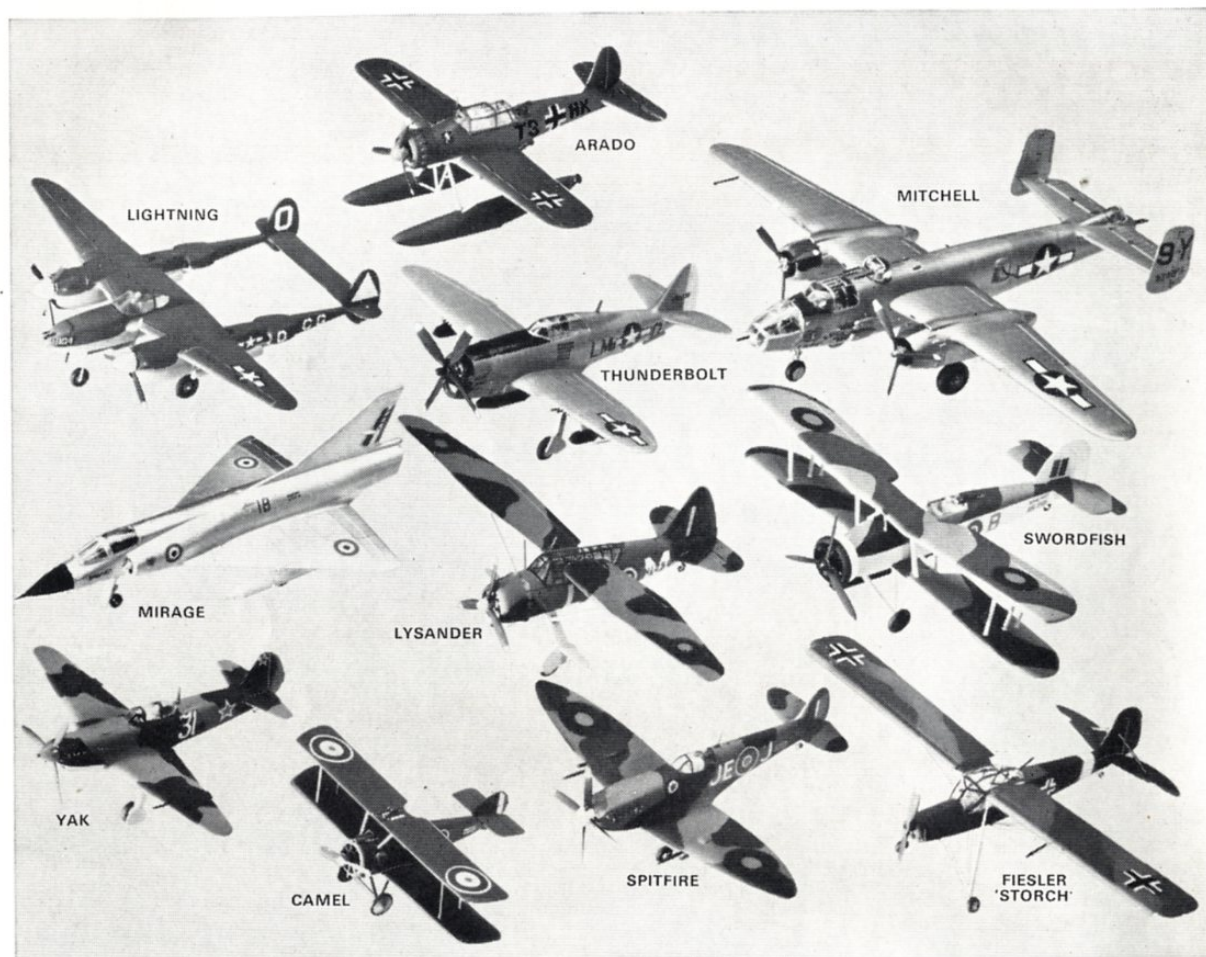
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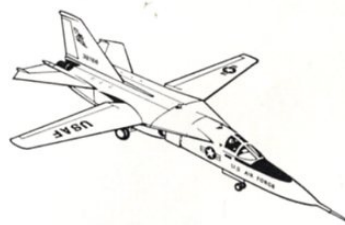
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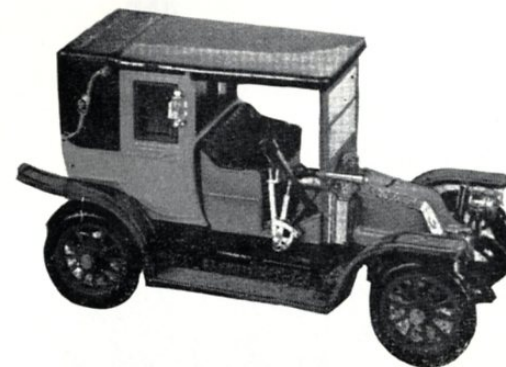
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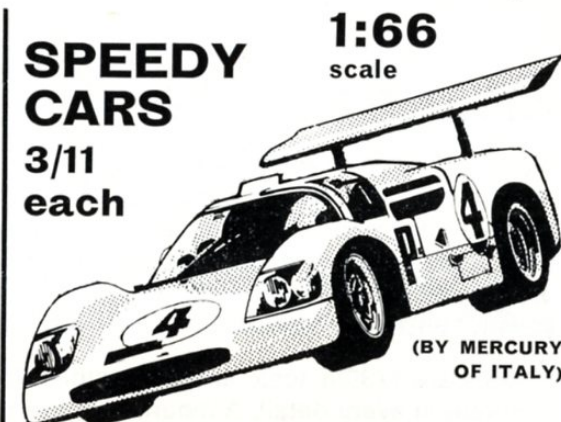
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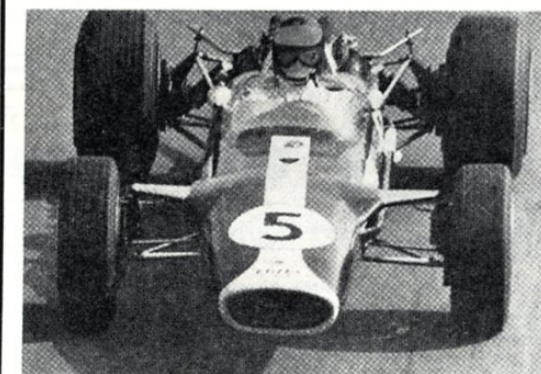
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To assist Military "Converters", here is a list of Bellona Prints which cover subjects that can be easily converted from the Airfix Kits.

AIRFIX KITS

Bellona Military Vehicle Print Series Number

A2V	German Panther Tank	Series 8
	Jagdpanther—Sd Kfz 173 8.8 cm. Tank Destroyer	Series 16
	Pz. Kpfw 'Panther' Ausf G—1945 Model	
A3V	American Sherman Tank	Series 3
	M 7 B 105 mm. HMC 'Priest'	
	M 4 Tank with 105 mm. Howitzer/Horizontal	
	Volute Suspension	Series 5
	17 pdr. Sherman VC 'Firefly'	Series 7
	3" GMC M10 tank destroyer	Series 9
	Medium Tank T.6	Series 11
	M4A3E2—Sherman Assault Tank 'Jumbo'	Series 13
	Canadian Cruiser RAM II (M4A5)	Series 14
	M3 'General Lee' Mk. I	Series 15

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A6V	German 75 mm. Assault Gun	Series 6
	Sturmkanone 7.5 cm. auf Pz. Kpfw III Ausf. D.	Series 7
	Pz. Kpfw III Ausf. F (5 cm. KwK L/42)	
A7V	Russian Josef Stalin III	Series 4
	Kliment Vorishilov I C (76.2 mm.)	Series 4
	Kliment Vorishilov II (152 mm.)	
A8V	German Tiger Tank	Series 13
	Pz. Kpfw 'Tiger' Ausf. E (All versions)	
A11V	German Armoured Car (Sd Kfz 234)	Series 12
	S. PzSpwg. (Sd Kfz 232) (FU) 8-rad.	
A14V	British Matador and 5.5 inch Gun	Series 11
	Armoured Command Vehicle HP and LP (AEC)	
	T6 x 6 Mk. I	
A15V	British World War I Tank Mk. 1	Series 1
	Tank Mark 1 Signals Tank Mk. 1	Series 14
	Tank Mark IV (Female)	
A16V	Russian T34 Tank	Series 4
	T.34/85 Tank	Series 2
	100 mm. Tank Destroyer SU 100	Series 7
	85 mm. Tank Destroyer SU 85	
A202V	American Buffalo Amphibian and Jeep	Series 6
	Jeep and M100 1/2 ton trailer and amphibious jeep	
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A203V	German 88 mm. Gun and Tractor	Series 9
	8.8 cm. FLAK 18 ton Sd Ah 201 trailer (earlier	
	trailer than Airfix model) with 8t ZgKw Krauss	
	Maffei semitrack tractor	

In addition to these conversions listed above there are of course many tanks and vehicles in the Bellona Print Series which can be 'scratch built' with Airfix components as the basis. For instance in SERIES 2 Bellona Prints there is the Pz. Kpfw 'Tiger' Ausf. B (Koenigstiger) which was the subject of an Airfix Magazine article in 1966. This model can be built combining parts from both the Tiger and Panther Kits.

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- T.3. German Crosses for Military Vehicles, 90 emblems.
- T.4. Alamein Sheet.
- T.5. German Tank numbers, outlined white.
- T.6. British Armoured Unit signs.

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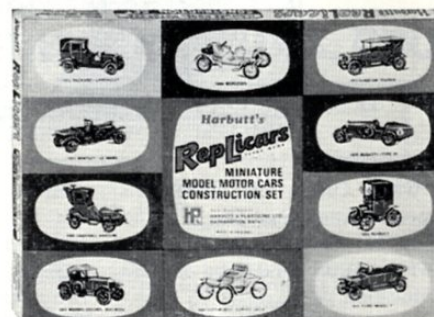
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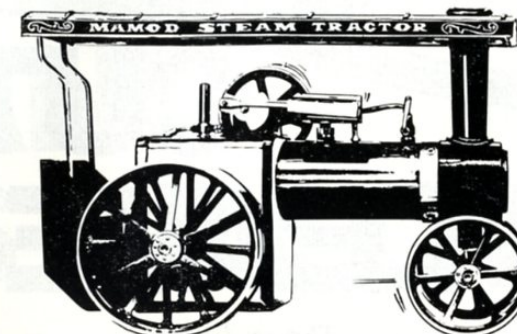
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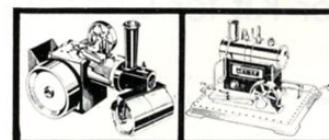
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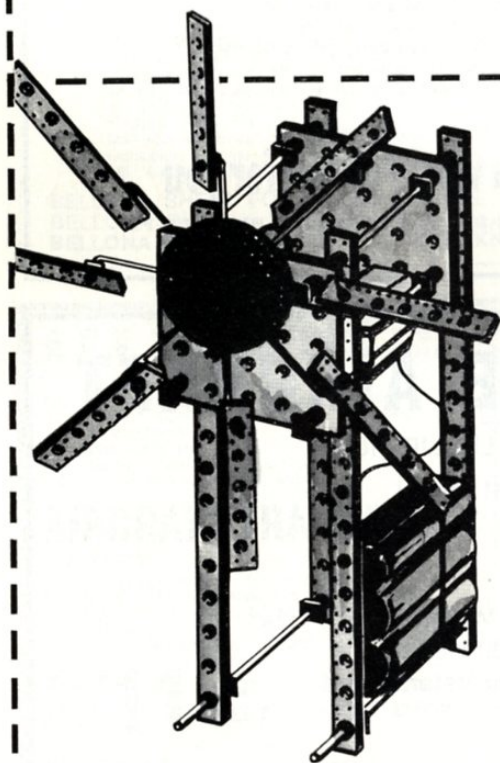
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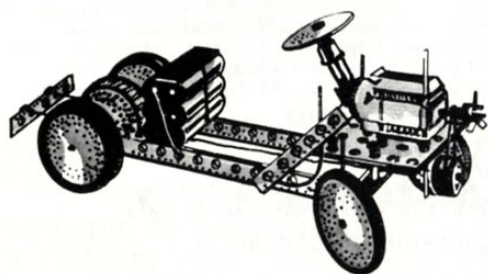
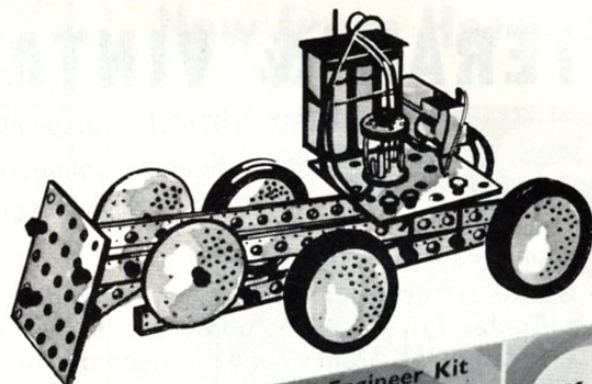
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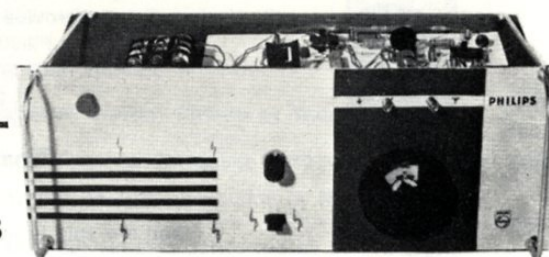
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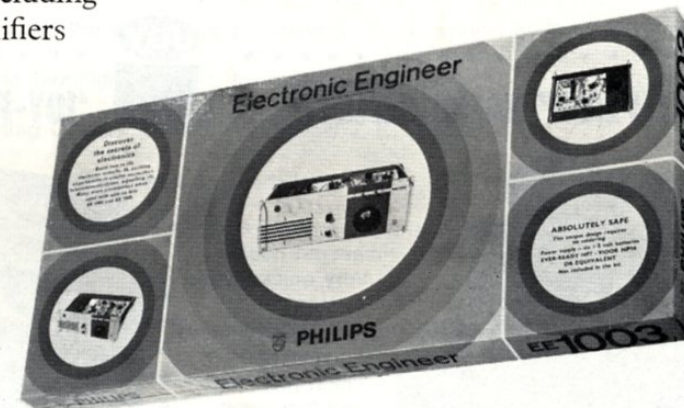
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AIRFIX magazine

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FOR PLASTIC MODELLERS

November 1968

Volume 10 No 3

Editor Chris Ellis

Cover Picture

Two Spitfire Vs in typical Middle East camouflage, photographed in the Spring of 1943 during the Tunisian Campaign. Nearest is ER622, WR-D. Aircraft C in the background has its code letter in plain white with the rest either very faded or almost obliterated. These two machines were engaged in a typical Desert Air Force task - 'spotting' for the guns of the Eighth Army; flying in pairs over the enemy lines they gave precise positions of enemy concentrations of tanks, troops, or transport, and directed the line of fire by constant communication with the nearest gun battery. It is tempting to suggest that these Spitfires belonged to 93 Squadron, but can any reader confirm this?

Modellers should note that the Spitfire V illustrated would be an easy conversion subject from the Airfix Spitfire IX - clip the wings, replace the exhaust manifolds, remove the outer cannon stubs, lengthen the air intake to make a Vokes filter, replace the port radiator with an oil cooler, and provide a 3-blade propeller.

(Imperial War Museum)

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IT may well be argued, in time to come, that this year's Farnborough air show did not produce the highlights that have been seen on many previous years. Although there was not a great deal of new material to show since 1966 as far as aircraft went, the sensational floods at the beginning of the week and the tragic crash of the Breguet Atlantic on the Friday kept the show well to the fore in national headlines and the many hundreds of journalists from all over the world at full pressure.

With more than half of Farnborough's airfield covered with water to a depth of three feet from a break in the bank of the Basingstoke Canal which borders the south-east corner of the airfield, it looked, early on Monday morning, as if the flying display itself would be cancelled completely. Thanks to herculean efforts by a number of RAE employees and 50 trainees from the nearby Royal Engineers barracks at Cove, the worst of the disaster, which could have ruined the show, was averted.

Working all night in torrential rain with no mechanical aids, the workers kept back most of the flood water only to have the banks collapse again early in the morning when an oak tree was washed away and released many tons of water through a fresh gap.

Preservation enthusiasts will probably want to make a note that in order to help stop the flood of water the Engineers manhandled an old Devon fuselage into the breach during the night. The aircraft was being used by the RAE Fire Section to practice fire fighting emergencies. When the breach was finally filled with tons of hard core and rubble the aircraft was completely covered. For the record, if aircraft enthusiasts 50 years from now try to dig the remains out of the canal bank, the Devon was XA879 and was formerly part of the Empire Test Pilots' School fleet when at Farnborough. The aircraft went into service with the School in October, 1952, and was struck off charge in March of this year.

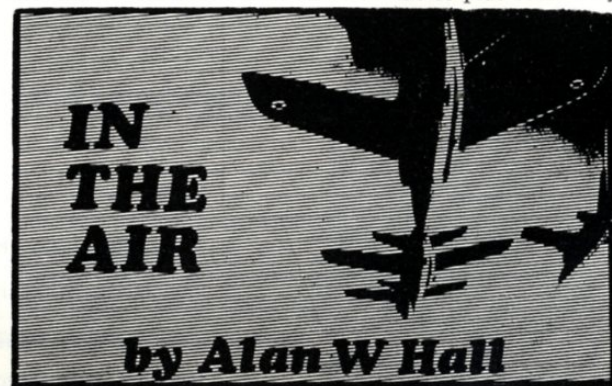
Flying was reduced to demonstrations by helicopters and light aircraft on the first day of the show but once the water had receded from the runway the show went on.

Although my own impressions of this year's Farnborough were mainly wet ones, the manufacturers did a record trade. In spite of the weather and the crash, more than 172,000 people attended on the three public days, which was only about 1,000 less than in 1966. Statistically the first week in September gives the best chance of good weather. The



reason for moving the date was that it would clash with the Autumn holiday, but in my own opinion it would be worth keeping it the way it was in view of the problems encountered by an exhibition mainly under canvas.

From the three hour flying programme on the public days the service participation, particularly that of the Royal Navy, stood out as being the best spectacle. As this was the last time that the senior service would be including a fixed wing demonstration in their show—their carriers should all be retired by the time the next Farnborough takes place—they determined to make the most of the occasion. Combined aerobatics with Sea Vixens and Buccaneers plus some very



fast runs by the Phantoms now at Yeovilton created sonic bangs on the first public day just to add to the noise of the jets and the action of the Wessex helicopters of No 845 Sqn with the Royal Marine Commandos.

On the other end of the scale it was interesting to see the gyrations of the single-seat Topsy Nipper now being manufactured by Slingsby, and the introduction of the Beagle Pups together with 'big brother' Bassett.

Nine overseas countries took part in the show. One wonders if the Fellowship, jet-powered follower of the Friendship, will catch on like its predecessor, but it showed an admirable turn of speed and from the illustrations has a comfortable interior for either executive or feeder-line transport. The new Anglo-French helicopters were interesting compared to the Navy's new giant, the Sea King, with its



Heading: Latest photograph of the Red Arrows taken just before the Farnborough flying display. The Arrows gave their last show for some time on Sunday September 22 as the aircraft are due to go in for major servicing during the coming months. **Above:** The hottest ship on the British civil register. Lightning F6 G-AWON in the static display supported by a large number of lethal looking ornaments. **Left:** The Phantom joins the Navy. Here one of the first aircraft with No 700P Squadron at Yeovilton lands after its Demonstration at Farnborough.

AIRFIX magazine



Top: The ill-fated Breguet Atlantic photographed just prior to its crash behind the black sheds at Farnborough. **Above:** Variations on a theme. Danish markings on a Hunter F6.

four homing torpedoes. The Italian version of the ever-popular Iroquois, it is thought, would be worthy of study by those in charge of national defence budgets. It was a pity that both the Concorde and Jaguar were not ready for the show, however, as this would have undoubtedly made all the difference to the general interest.

The crash of the Atlantic was a major disaster but being thankful for small mercies, it should be remembered that only one fatality occurred apart from the crew and although a number of RAE's transport vehicle fleet suffered and buildings were demolished, it could have been much worse. A few yards in either direction and the aircraft would have landed on a building crowded with office workers, the main MT fuel dump or the Farnborough road traffic. A few minutes later and many of the employees at the Establishment would have been leaving work and usually crowd out of the exit where the aircraft fell. The reaction of the fire services, police and rescue workers was prompt and efficient. Unfortunately there was no chance for the crew whose aircraft burst into flame at the moment of impact.

Although the enquiry into the accident has been convened, one cannot help wondering why the Atlantic's pilot did not go straight on when he found himself running out of air-speed, and not go into a very steep bank from which even the most novice pilot will tell you an aircraft cannot hope to recover.

Holiday in Denmark

IN spite of protestations from one's family, I am sure that many aviation enthusiasts like me cannot resist looking up one or two airfields and objects of aviation interest when on holiday. My own brood decided that Denmark would be the object of their attentions this year, an idea not entirely discouraged by father who had in the back of his mind a visit to the Danish Air Force and the possibility of seeing their remaining Catalinas at first hand.

A contact on the Danish Air Staff provided the necessary permission and I was on my way to Vaerlose, an airfield close to Copenhagen which is used as the main transport aircraft base for the Danes and, due to its close proximity to the capital, a centre for other interesting aircraft movements.

Five Catalinas are still on operations with the Danish Air Force and from their home base in Denmark take turns in arctic patrol duties in Greenland. All of the aircraft, with one exception, are PBY-6As and according to Captain T. Jorgensen, their commander, are hard to replace. At the present time they are due to remain in service for at least another four to five years. No other amphibian or even helicopter can do the work of these ageing aircraft. The Danish Air Staff have looked at the Grumman Albatros and other equally useful amphibians but in each case they are too complicated, cannot carry the load required or have operational limitations which preclude their use in arctic waters. Current thinking is concentrated on the Canadair CL215, as this may be the answer to the problem.

In service the aircraft are used for ferrying troops on arctic patrol, carrying food, coal, fish, dog teams and other mixed cargo to isolated parts of Greenland which would otherwise be inaccessible by overland or sea routes. The Cats are maids of all work. They are always on standby for air-sea rescue operations and the crews become experts in navigation which can be difficult in northern regions close to the magnetic pole and without the comfort of the many electronic aids now in common use for navigating purposes.

Elsewhere on Vaerlose I found Chipmunks, a KZ Larken, T-33s, Dakotas, Skymasters, S-61s and Allouettes, all in Danish colours. Overhead a Convairliner of SAS did touch-and-go approaches on a crew training programme. Later, two Hunters arrived and duly posed for my camera.

The Danes are eagerly awaiting the arrival of their newly-ordered Drakens which will add considerably to the defensive capabilities of their Air Force.

I found that almost everyone to whom I spoke during my visit was very aware of the fact that the nearest Warsaw Pact country was only thirty miles away and that advanced warning of any attack would be brief. The effects of the last war and the lessons learned about Fifth Columnists are also very evident. The Danish Observer Corps, for example, still regards its prime role as aircraft reporting and all Danes in the Corps as well as their Territorial forces are armed and keep their weapons and ammunition at home.

They are also very security conscious. Although the Danish Air Force holds open days in the same way as our own, cameras are forbidden.

Below: Danish Air Force Catalinas at Vaerlose. These aircraft, five of which are still on operations, commute with the icy wastes of Greenland and are used for cargo and air-sea rescue work. **Bottom:** A KZ Larken.



NEWS FROM AIRFIX

The world's greatest value in construction kits

Ferrari 250LM

HMS Fearless

LE MANS 24 Hour race fans who recall the epic race of 1963 will recapture some of its thrills when they build the latest Airfix 1:32 scale model car kit—the 180 mph Ferrari 250LM Berlinetta.

The 250LMB, which owes its parentage to the Le Mans winner of 1963, has a light alloy body built by Pininfarina on the immensely strong Ferrari multi-tubular chassis frame and is powered by the 3.3 litre V12 engine developing more than 320 brake horsepower at 7,200 rpm.

Airfix have faithfully reproduced every significant detail of this thoroughbred sports racing car from the three vertically-mounted control pedals and cranked gearshift to the wide brake drums, Borrani wheels and triple-eared knock-on hubs.

The kit, which contains more than 50 parts, full assembly and painting instructions and cut-out racing numbers, costs 3s 8d.

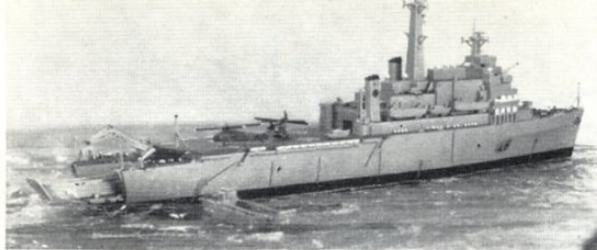


The new Airfix 1:32 scale Ferrari 250LM.

THE changing structure of the Royal Navy is graphically reflected in the latest addition to the Airfix range of fighting ships—the assault landing ship HMS Fearless in a 50 ft:1 inch scale (1:600).

HMS Fearless—launched in December, 1963—and her sister ship Intrepid are the largest British naval vessels to be designed and built since the second world war. They are equipped to transport and land Army units and to act as floating headquarters during amphibious operations.

The Airfix kit of Fearless—which makes up into a model just over 10 inches long—also includes two helicopters, six landing craft (four LCAs and two LCMs), motor whaler and motor cutter, dinghies, and life rafts.



HMS Fearless in 1:600 scale is the latest Airfix warship kit.

Fearless herself is magnificently detailed down to floodlights, Sea Cat launchers and 40 mm guns. The stern ramp can be raised and lowered as can the forward and midships gangways.

Full assembly and painting instructions, transfers and display cradles are included. The kit costs 5s 2d.



Soon after his flight in a RAF Dominie (reported in our September, 1968, issue), AIRFIX magazine's air historian, Michael J. F. Bowyer (left, above) presented one of the first Airfix 1:72 scale kits of the aircraft to Group Captain Alan Davies, CO of No 1 ANS, Stradishall, who operate the real aircraft. The actual aircraft depicted in the kit stands behind them.

We have many letters from readers requesting back copies of AIRFIX MAGAZINE containing conversion articles. Back copies of some issues are still available for the benefit of readers who may have missed or mislaid earlier editions. For example, here are some of the practical articles which have appeared.

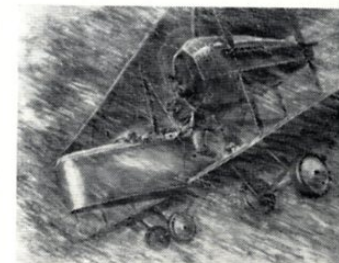
1966: July — RF-4C Phantom conversion. September—Matador variants. 1967: July—Soviet missile tank. August—Early Churchills and Dauntless. 1968: March — Model timber yard. May—German Artillery, 1914 and Wellington I. June—Auster conversion and 'H' class destroyers. July—FC-47 gunship. August—Me 109 and T-34 conversions.

Would readers please note that all issues not listed above are now out of print and can no longer be supplied.

Back copies cost 2s each (including postage) for each copy up to and including September, 1966. For all subsequent editions the cost is 2s 6d an issue, post paid. Please address all requests for back copies, together with your remittance, to our circulation department at SURRIDGE DAWSON & CO (PRODUCTIONS) LTD, PUBLISHING DEPT, 136 NEW KENT ROAD, LONDON SE1.

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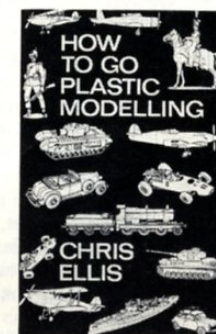
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AIRFIX'S ready-to-run 1:24 scale cars have proved very popular among home slot-racing enthusiasts, and of this range the Chaparral 2C is one of the most attractive. But, possibly because its designers intended it to appeal to the younger 'driver', this 2C owes little apart from its general body shape to the full-sized original. The actual Chaparral 2C was the first really successful design to stem from Texan oil-man Jim Hall's works at Midland, Texas, and, fitted with a fully race-modified Chevrolet V8 engine and secret automatic transmission, the two cars built were raced widely at the end of 1965. Hall's partner, Hap Sharp, won the important Riverside-Times GP in California that year against opposition which included



Above: Useful detail view of Hap Sharp's winning car at the Nassau Trophy race described in the text. This differs from Hall's car, featured in the conversion by having intakes in the rear wings and a full-width roll-over bar.

Changing the Chaparral

DOUG NYE ADDS THE DETAIL TO THE AIRFIX MODEL

Jackie Stewart, Jim Clark, Graham Hill and Dan Gurney, and then repeated the performance at Nassau in the Bahamas after Hall had crashed badly. This brought Chaparral's US record that year to 17 wins and four second places out of 22 starts; something to be really proud of!

Now the Airfix 2C's vacuum-formed body depicts the type which Hall crashed at Nassau, for Sharp's winning car at Riverside and the Bahaman race had air intakes on either side of the cockpit let into the forward ends of the rear wings. To convert the body to a more realistic representation of Hall's car is not difficult and, with even very basic experience in conversion work, should only occupy one or two evenings.

First job is to carefully cut away unneeded parts of the body. I found this was best achieved by using a straight-edged X-Acto knife blade, and the parts which ought to be cut away include the whole of the tail spoiler assembly, the cockpit decking (with the driver attached), the air intake under the nose and the outlet on top of the nose just in front of the windscreen, the blank ends of the air intakes just aft of the cockpit on the body sides, and finally the lower surfaces of the nose spoilers.

To start, remove the cockpit deck. This is attached to the back of the cockpit cut-out, and to the transparent extensions of the screen at the front and on both sides. Naturally, this is

not as per prototype—they didn't have double-glazing! Remove the chassis by unscrewing the four retaining screws and turn the body shell upside down. Then cut very carefully around what should be the upper rim of the screen. Take care when it comes to separating the deck from the rear edge of the cockpit, for the plastic is thin here and liable to tear. However, once cut-out all round, remove the complete deck, inside parts of the screen and driver.

Cutting out the air outlet on top of the nose is simple enough, just cut the rearward edge of the outlet orifice away from outside the shell, and the forward edge from inside the shell. In this way the form of the plastic will guide the knife blade to where it ought to be. The inlet under the nose is slit very carefully for here, again, the plastic is thin, and then the lower surfaces of the nose spoilers are cut away. The tail spoiler is removed by cutting along the forward edge where it joins the rest of the body, curving up over the rear wings and then slicing away along the tops of the fins on either side. Cut down the tail leaving the fins intact, then remove the whole spoiler assembly by making a final cut across its base on the tail transom, leaving the part of the body with tail lights and outlet louvres in place. Final cutting-out job is to open up the air intakes on the body sides, and this can be done easily by gently inserting the point of the knife and

just working it round the edges of the moulding. Make the edges of the cut-outs as straight and neat as possible—it all adds to the appearance of the finished body.

Now to the job of making the shell more realistic, starting with the nose. The moulded lines around the point of the nose indicate where the tiny headlights of the original were mounted, and while it's perfectly acceptable to leave these opaque, you could use cleaner on the inside of the shell to remove the red paint and then cement boxes on the interior with scrap anodised circular headlights in them. But, for this simple conversion, I contented myself with re-working the nose spoilers. As moulded these are rather small. Once the under-surface of each spoiler has been removed, cut a piece of 1 mm plastic card to the shape shown and cement this in position beneath the remaining spoiler surface, also as shown. This modification will leave an unfilled gap in the lower side of the body, and this must be filled with a small sheet of the thinnest plastic card available (10 thou), cut oversize and glued home behind the offending gap. Should the patch protrude into the wheel-arch, trim off the excess. This patching will leave a slight depression in the shell, but this is obscured to normal viewing by the extended spoilers, and can easily be filled with body putty if required.

Outlined on the inside curvatures

AIRFIX magazine

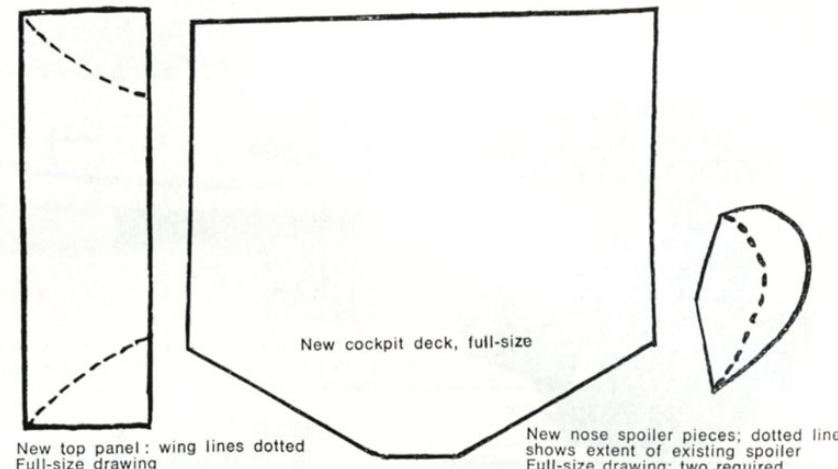
of the front wings are two almost rectangular areas. On the real car these were perforated louvres allowing air trapped under the wheel arches to escape. There are several ways of representing these panels in more detail on the Airfix shell, but punching small holes through the wing isn't one of them, for the plastic isn't strong enough to take it, and will shred away.

The simplest method is to scratch a louvred pattern into the plastic in these areas. When it comes to painting the body, black Indian ink can be run into the patterning to detail it properly.

Having removed the standard narrow cockpit deck, now cut a replacement full-width and full-length deck from 30 or 40 thou plastic card as shown. This, again, may be cemented into place. Sensibly used, cement does not remove the colouring from the body, although in this type of conversion the whole thing will have to be repainted on the outside anyway. The driver may now be replaced, having been cut away from the original deck. I cut away the locating spigots under his arms and Araldited him in the correct position on the new deck. Unfortunately this figure is, in itself, not very realistic and could be replaced with one of the proprietary figures available. Otherwise, scrape away the wide moulded chinstrap, paint the helmet silver and line-in a thinner black strap. The goggles should be given more curvature on their lower edges and painted gloss black, then wipe some body putty over the face to obscure the features and paint this whole area matt white. Jim Hall was one of the first drivers to wear a fireproof face mask consistently, and this is what the white-painted putty will represent.

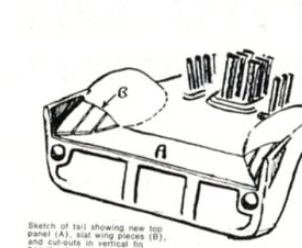
Now to the most difficult part of the job; rebuilding the tail end of the shell. A rectangular piece of plastic card, as drawn, is cut and cemented to the forward edge of the cut-out in the modified shell and to the upper edge of the tail transom. Now the curvature of the wheel covers has to be reproduced, and I found a fairly simple way—saving moulding techniques—was as follows.

The new body top panel passes underneath the cut-off end of these covers and the curve required for the new ends of the wings can be drawn in on this panel. I had some thin strips of plastic card left after the earlier operations, and cut these into suitable lengths (with the correct base curves)

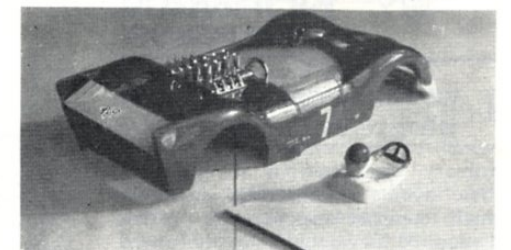


New top panel: wing lines dotted
Full-size drawing

New nose spoiler pieces; dotted line shows extent of existing spoiler
Full-size drawing; two required



Sketch of tail showing new top panel (A), tail wing pieces (B), and cut-outs in vertical fin. Finely shaded



Modified body shell, before painting

to cement in place between the cut-off ends of the shell wings and the curve drawn on the body top panel. This will leave a slightly corrugated finish but, again, a layer of body putty and a coat of paint will give the wings, suitably sanded down, a realistic and fairly correct appearance.

Small vertical plastic card plates must now be made up to form the inside surfaces of the vertical tail fins. Cement these to the shell at the top and rear edge, and to the new wheel covers at the bottom. Now, the complete spoiler assembly which was cut away in a sort of inverted Vee-shape must now be cut in two, retaining the front surface of the spoiler with its STP sticker. Separating this from the back of the assembly will leave a slight hook on the rearward edge. Spread some cement on the reverse, and slide the hook over the edge of a 1 mm plastic card sheet. Wait for the cement to dry, then cut the plastic card away, using the original spoiler shape as a template. If you require an operating spoiler fit a stiff wire spindle between the laminations, if not just glue the new, strengthened spoiler into place with the curves at the lower front corners, fitting over the old cut-outs on the wheel arches.

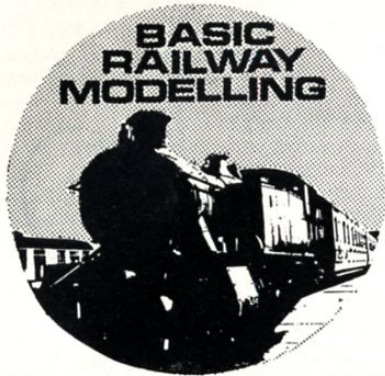
For an operating spoiler, the wire spindle, once laminated into place, can be sprung into small holes drilled in the tail fins on either side.

Experimentation with small pieces

of ballast fixed to the leading and trailing edges of the wing should arrive at a point of balance at which the car's acceleration will make the spoiler level, and deceleration will make it raise into the braking position. Stops on the side fins will prevent the spoiler flopping back over-centre.

Now, the whole shell, with body-puttied parts sanded carefully to make them as smooth as possible, must be painted gloss white. This variant of the Chaparral didn't have the primer-coloured lower body sides of the earlier versions, but retained the standard USRRRC race numbers of 65 for Sharp and 66 for Hall, both being in black script in a thin black circle painted directly on to the bodywork. The new cockpit deck is painted matt black, after the quadrant-shaped gaps left on either side of the cockpit back have been suitably filled with scrap card. A small Firestone sticker above the rear wheel arches on either side completes the modified, and by now much more realistic, shell.

One last touch would be to replace the standard wheel inserts with some correct cast-spoke Chaparral inserts pinched from some other kit. Failing their availability, don't bother, for you now have an Airfix 'Shap' to outdo all others for sheer appearance, if not necessarily performance! Now's your chance to have a real go at those Concoors classes...

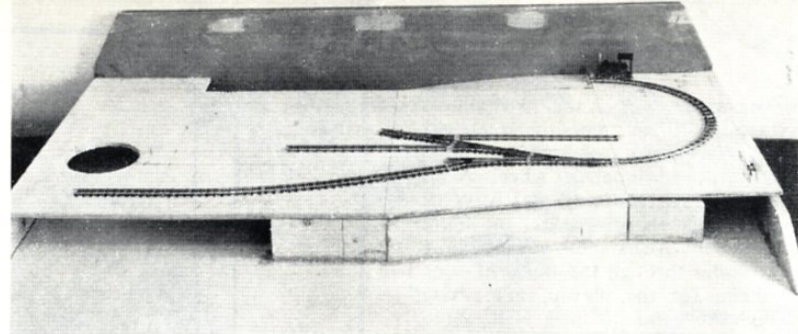


BY **NORMAN SIMMONS**

LAST month I discussed two layout plans for an 00-9 narrow gauge model railway system. One of the primary considerations in designing these layouts was that they should be small, compact and portable so that if required they could be easily carried about the house and operated in the living room in the company of the rest of the family. The smaller of the two, Plan B, measures only 3 ft x 2 ft. and I decided this is the one that would suit me best.

A necessary start to any model railway is the construction of the baseboard. The generally accepted open framework construction using 2 inch x 1 inch timber with a 1/2 inch thick softboard top is the type I advocate for an OO standard gauge layout where the baseboard is usually of such a size that it requires its own trestles or wall bracket supports. But for my much smaller 00-9 narrow gauge system I wanted something a little less bulky as I visualised operating it on the kitchen or even the dining room table.

A board of some sort was the obvious solution, but what sort of board? The requirements were that it should not warp, bend or twist unduly, it should be thick enough and compact enough to take track pins, small nails or small screws and it should not be too heavy. One of my local 'do-it-yourself' shops operates a kind of supermarket of pre-cut materials of all thicknesses and sizes and after comparing materials such as hardboard, chipboard and plywood of various thicknesses, 1/4 inch plywood seemed just about right in the 3 ft x 2 ft size. Normally I would not dream of using such a hard material as plywood for a model railway using OO standard gauge equipment, mainly



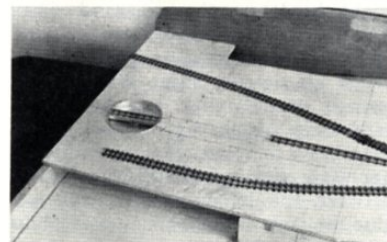
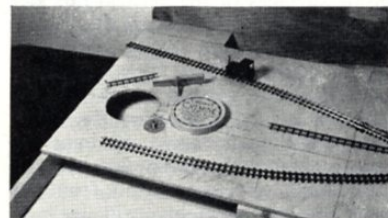
This month's work shown almost complete. The high level section is seen in position on the supports with the gradient at the rear where the locomotive is standing. Track is laid temporarily to check that everything fits according to the plan.

The baseboard

CONTINUING OUR NARROW GAUGE PROJECT

because of the noise, but 00-9 narrow gauge trains are so light and they travel so leisurely that this is not such a problem.

It will be seen that Plan B is a dual level system with a high level terminus partly concealing the continuous oval and return loop which operate at the lower level. Another smaller piece of 1/4 inch ply, 3 ft x 1 ft 5 inch, was therefore selected for the high level sub-base. It must be admitted that 3 ft x 1 ft 5 inch is rather an unorthodox measurement to find ready cut in a shop but this day I must have been particularly lucky! Needless to say, the measurement is not terribly critical and anything about 3 ft x



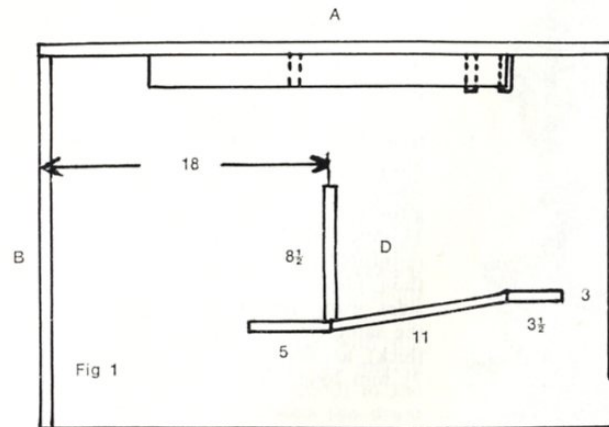
Above: Building the turntable in the manner described in this article, using a suitable tin lid as the 'well'. Upper view shows the hole cut out, plus the components, all of which are seen in place in the lower view. Note track plan marked in pencil on the baseboard.

1 ft 6 inch, give or take an inch or two, would do.

Next I needed some material to support the high level sub-base above the main baseboard. Two inches is about the minimum clearance required for the tallest piece of rolling stock in my present equipment and this is the Playcraft Decauville 0-4-0 tank locomotive. Two inches includes adequate allowance for the height of the track and all other foreseeable factors so some 2 inch x 1/2 inch finished size strip wood was selected. A length 7 ft long was found to be sufficient. Finally, a 3 ft plank about 4 or 5 inches wide (this is not critical) was selected to form a back piece. All this material which, apart from screws and glue, completes the shopping list, cost less than £1.

It is essential to complete all the heavy carpentry work before laying any of the track and this part of the work should be carefully planned to ensure that nothing is overlooked.

First, screw and glue the plank forming the back piece to the low level plywood—A at Fig 1. Now screw and glue the two side pieces B and C in place. Next, cut the high level sub-base to shape, Fig 2. The rectangular portion removed at E will become the base for the incline linking the high and low level. The side pieces B and C support the high level sub-base at the sides but to stop it sagging in the centre some additional supports are required as shown at D on Fig 1. These have been carefully positioned to allow plenty of clearance for the low level tracks, taking into consideration the overhang of the rolling stock around the curves. D will also provide support for the scenic work which will



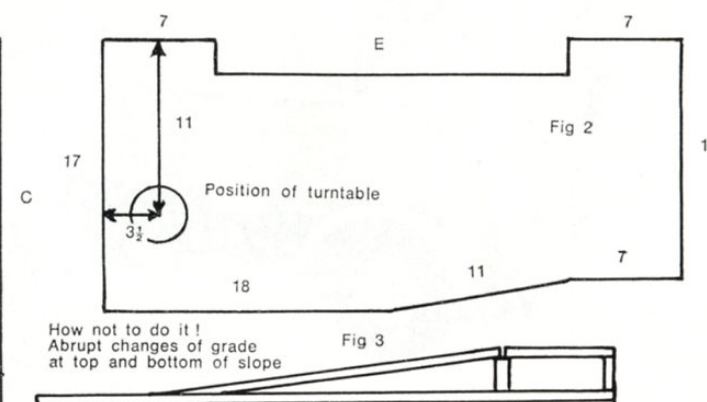
All dimensions in inches except where stated 3 ft

Above: Scale drawings show the baseboard construction; all parts are keyed to references in text.

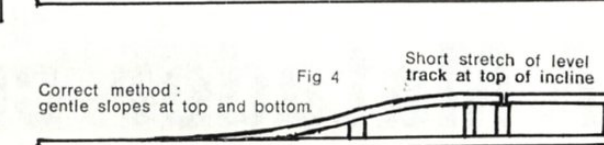
eventually be built up on the foreground of the low level section.

Next comes construction of the gradient. In describing how to do it, it is perhaps easier to show what not to do—Fig 3. If the changes in grade at the top and bottom of the gradient are made too abrupt this is likely to cause difficulty to long wheelbase rolling stock, especially when it is remembered that the line also curves sharply at these points. The changes in grade should be smoothed out as in Fig 4. It is particularly desirable that there should be a short stretch of level track at the top of the gradient as there will be the additional hazard of a break in the running rails at this point. The high level sub-base must be made readily detachable to allow ready access to the tracks below and the gap in the rails at the top of the gradient occur at a point where the high and low level tracks meet.

A turntable is a feature of the terminal station track layout and thought must be given at this stage of constructing the baseboard as to what sort of turntable is required. It is possible



How not to do it! Abrupt changes of grade at top and bottom of slope



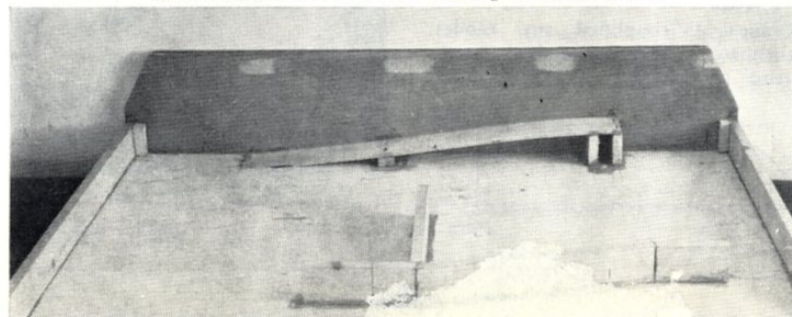
Correct method: gentle slopes at top and bottom.

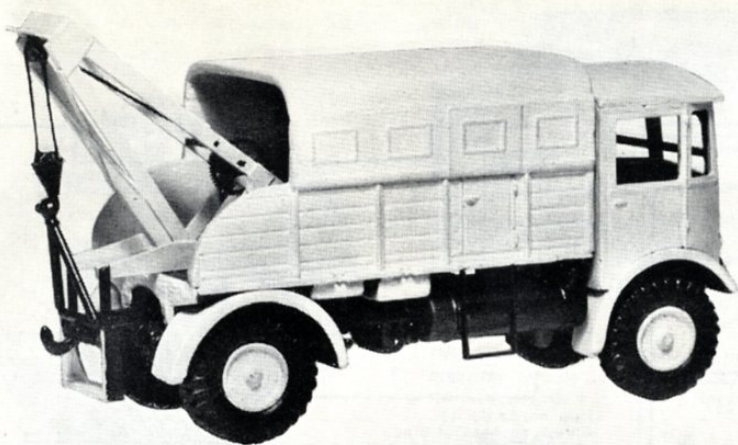
to build a flat disc type of turntable on top of the baseboard but all the narrow gauge turntables for locomotives I have ever seen have been the well type. To model one of these will necessitate cutting a hole in the baseboard. In marking out the position of the turntable, draw out the position of the tracks leading up to it. In the case of Plan B there are only two and I took a line midway between the two tracks as the centre line of the turntable. The nearer the turntable is to the edge of the baseboard the longer the station platform can be, which is desirable, but at the same time consideration must be given to possible fouling of the tracks below, either by the base of the turntable or the centre pivot. The position of the turntable as marked at Fig 2 makes allowance for these factors.

The diameter of the turntable will, of course, depend on the length of your longest locomotive. Most proprietary model 00-9 locomotives available today are only 2-3 inches long so the turntable can be quite small, but it is well to allow for all possible

future developments. What my chances are I don't know, but I would very much like to make an 00-9 model of one of the Lynton and Barnstaple locomotives. The turntable on the Lynton and Barnstaple, which, by the way, is still seeing service at Romney on the Romney Hythe & Dymchurch Railway, is 30 feet long—just under 5 inches in 4 mm scale. The L & B locomotives were approximately 23 feet long over the buffer beams, so a turntable about 3 1/2 to 4 inches long would just about do for a model of one of these locomotives in 4 mm scale. My turntable is still under construction at the time of writing so I cannot give it a full description at this stage. I can, however, say that I am using the lid of a tin as the well for my turntable and after rummaging through all the likely sources at home, and a few unlikely ones as well, I found one of my wife's cleansing cream tins was just the right size—3 1/2 inches. Luckily the tin was nearly empty! The circular hole in the baseboard was cut an exact fit for the lid so the lip around the edge stopped it falling right the way through the hole. I hope to say more about the turntable in another article in this series. Finally, if you want to include an inspection pit in your locomotive shed it is a good idea to think about it now since it will be very much easier chiselling out a slot in the baseboard without the track or any other delicate features in place. The width of the pit can only be very narrow, something like 8 mm, so the track will have to be drawn in pretty accurately to get the exact position of the pit.

Below: The main baseboard before the high level section was fitted, showing the supports and the gradient fixed in place. Compare with Fig 1 at head of this page to see how parts locate on the base. Refer also to Plan B on page 55 in last month's issue when making this baseboard.





A Matador crane truck

MICHAEL ANDRESS SUGGESTS A SIMPLE LINESIDE MODEL

THE Airfix Matador kit, although intended especially for military modellers, is a very suitable basis for models of many different types of commercial lorries which will add interest to your model railway layout. Also, there are quite a number of prototype ex-WD Matadors which have been converted for civilian purposes and which can be seen around the country, often in timber yards (Matador Crane Truck, AIRFIX magazine, August, 1967) and at service stations. The Airfix Matador can be similarly converted to provide accurate models of these prototypes.

My latest conversion is based on a breakdown vehicle which I photographed recently at a garage on the A1. The crane mounted on this lorry appears to be a fairly standard type as I have seen identical cranes on other different breakdown vehicles.

Now for the details of the construction.

Chassis: The chassis and wheels are assembled exactly as in the kit instructions; I pre-painted most of the parts as this is usually much easier and neater than trying to paint the completed model.

Cab: The only alteration necessary is to the cab roof (Part 14). File off the projecting rim around the opening and the two ridges on the upper surface. Then cover the roof with a piece of thick drawing paper (if you use liquid cement, really solvent, this is simply done by holding a slightly oversize piece of paper in place on

the roof and painting over it with the solvent which will soak through the paper and fix it in position), and trim neatly to exact size when the cement has set firm. Windows can be added if desired using transparent plastic sheet glued behind the window openings before assembling the cab.

Body: The body floor (Part 17) must be shortened by cutting 9½ mm from the rear—this leaves the rear of the platform flush with the rear surface of the last cross member. The right-hand body side (Part 19) is cut down as shown in Fig 1 and the left-hand side (Part 18) is cut down to match (remembering that on both sides the cutting down is at the rear). The canopy sides (Parts 21 and 22) are cut down at the rear so that they measure 35 mm and the canopy top (Part 25) is similarly shortened to 35 mm. The front board (Part 16) and canopy front (Part 23) are used unaltered. These parts can all be painted and assembled now, following the kit instructions in so far as they are applicable. Paint and add the equipment lockers (Parts 28, 29, and 30) at this stage and then cement the assembled cab and built up body to the chassis.

Crane: I simplified my model slightly by only having a single hook instead of two as in the original

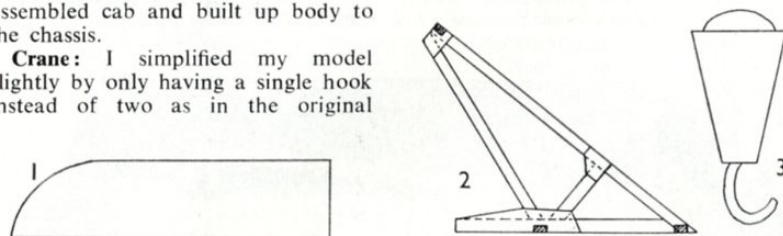
vehicle. However, you could easily add a second hook, pulley, and winding drum if you wish, using my photo of the full-sized lorry as a guide.

Make up the two sides of the crane (remember the sides are not identical, but are mirror images) using the actual size plan in Fig 2 to work from. The girders are made from Microstrip 1½ mm wide by ¼ mm thick and the re-inforcing plates are cut from 10 thou plastic card. I joined the two sides using spacers of Microstrip of the same size (1½ mm wide by ¼ mm thick) as used for the girders, and 7½ mm long. These spacers are posi-

tioned as shown by the shaded areas in Fig 2. Add two diagonal braces of 1 mm wide thin plastic strip (about 10 thou or less) 18 mm long to the top and two similar braces 19 mm long to the underside of the crane. I bought a packet of Slater's Plastikard Microstrip some time ago and this contained a large selection of different widths and thicknesses. Using these is much neater and more convenient than trying to cut your own fine strips. As there are many different sizes in a packet, it is difficult for me to quote exact sizes for you. However, the sizes are not too critical provided the parts look about right on your model.

I added a piece of 10 thou plastic card, 2½ mm wide and 10 mm long, across the upper end of the crane and another piece of the same material, also 10 mm long but only 1 mm wide, set out at an angle from the lower part of the first piece. The model photos show this and will make my

Below: (1) Full-size drawing for sides as modified. (2) Full-size drawing for jib. (3) Hook—drawn five times actual size.



AIRFIX magazine

description easier to follow. The gear wheel is an old watch gear 6 mm in diameter and the winding drum, to which it is fixed, was cut from the thicker of the smooth parts of one of the trunnions of the gun (Part 58). Cut this to length so that when it is fixed to the gear wheel the completed gear and drum will fit neatly between the sides of the crane. After painting the crane, and the drum and gear, the latter can be glued in place between the crane sides. I didn't have a small enough gear wheel to represent the smaller gear which meshes with the one on the winding drum, so I merely added an axle (of thin wood) in the appropriate position above the drum and the lack of the smaller gear is not at all noticeable.

The two pulleys are each a slice of two ridges and the intervening groove cut from the ridged part of a trunnion (Part 58). The upper pulley is mounted between two rectangles, 3 mm by 1 mm, of 10 thou plastic card. The pulley and mount are then painted black and glued in position as in the photos. For the lifting cable I used two pieces of black thread (this is easier than trying to use one longer length) and the first of these I glued to the winding drum and to the pulley at this stage. Make sure that the thread is stretched tautly between the drum and pulley and when the cement has dried trim off the excess thread. The other pulley is mounted between two pieces of 10 thou plastic card cut to the shape shown in Fig 3. The small hook is cut from scrap plastic card and fixed between the lower parts of the two side pieces.

The crane assembly can now be fitted on to the platform, positioning it so that the girders at the base of the crane extend 6½ mm beyond the rear edge of the platform. A strip of 1 mm



Top: A front view of the completed model. **Above:** A view of the actual vehicle on which the conversion is based.

wide 10 thou thick plastic card is cemented to the outer side of the end of each of these projecting girders, extending down to the end of each main chassis girder. The structure which is fitted below these main chassis girders is built up of 1½ mm by ¼ mm Microstrip for the girders, the uprights are 8 mm long and the crosspiece, which fits between the uprights, measures 11 mm; the triangular bracing pieces are cut from 10 thou plastic card. When assembled the upper ends of the uprights can be glued to the outer sides of the ends of the main chassis girders.

I built up the triangular towing bar from two exhausts (Part 46) left over from some of my earlier conversions, but you could just as easily use scrap plastic for the parts. The base is 11 mm long and the two other sides

each 12 mm. I cut a thin slice of the thicker smooth round part of a trunnion (Part 58) and made a hole through the slice to form the ring at the end of the towing bar. I took the second length of black thread (about 1½ inches long) and threaded it through under the pulley of the hook and then cemented the hook through the ring of the towing bar. I followed this by glueing the base of the towing bar on to the top surface of the spring which lies between the rear end of the two main chassis girders, with the towing bar nearly vertical. The crane is completed by bringing the two thread ends up to the upper pulley and cementing the threads so that they are taut; the excess thread is trimmed off after the cement has set firm.

The steps down from the door above the petrol tank are built up from 1 mm wide, thin Microstrip. The uprights are 10 mm long and the two rungs 5½ mm. The steps are then glued to the undersurface of the floor and to the petrol tank where they touch it. Add headlights of thin slices of 2½ mm diameter dowel painted silver.

The colour scheme is yellow and black with the rear edge of the platform and the rear surface of the rear cross member, the rear part of each back mudguard, and the rear parts of the structure which extends down from the rear ends of the main chassis girders painted white to make the vehicle more easily visible at night.

The photo of the full-size vehicle shows some extra details that the super-detail fan can add; the second hook, warning light on the roof, tail lights, mirrors, a light on the crane, a name board for the canopy, the black and white striped plates on the rear mudguards (again for more visibility at night when stopped at the site of an accident), number plates and so on.



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FRENCH STORCH

D. L. Whiting converts the Airfix kit to MS 502 and MS 505 versions

FOR these conversions you will need two of the excellent Airfix Fieseler Storch kits. The main modifications are confined to the engines and installations, plus a few additional details not found in the kit.

The MS502 is a 9-cylinder 230 hp Salmson-engined variant of the MS500, which was the standard Argus powered Storch built at the Morane factory. The MS505 is a re-engined 502, fitted with the American Jacobs 7-cylinder engine of 300 hp.

The first stage is to assemble the fuselage following the kit instructions, and when dry, cut the engine cowl off at the point indicated on the drawing, using a fine tooth razor saw. File all edges smooth and level, then cement a piece of 1/4 inch balsa sheet to the front and a smaller 1/4 inch sheet piece under the nose. The top of the nose cowling is built up with plastic body putty. When thoroughly dry, the new nose is carved and sanded to shape.

On the 502 the engine is mounted directly to the new front, but on the 505, a disc of 1 mm thick plastic card or a metal washer is first cemented to the front of the fuselage (with Evo-stik if the latter is used) to form the firewall/engine mount.

The engines are the next job. Mine were modified from those in a Frog Miles Master kit which had been converted to Kestrel versions, but they could be built up from scratch, using stretched sprue and plastic card, with a Master engine as a guide if you have one. The 9-cylinder Salmson version is quite straightforward, and only requires the crankcase front cover building up with plastic putty. When the putty has been sanded smooth, the push-rods and rocker-covers can be fitted, two to each cylinder. These are made from short lengths of fuse wire bent to an inverted 'L' shape. The rocker covers are merely short lengths of plastic tube taken from fine electrical wire.

For the 505, things get just a little more complicated, mainly because it has only seven cylinders. I tackled this by cutting eight of the cylinders away from the crankcase with a modelling knife, leaving just one cylinder in the vertical position. Next cement six cylinders around the rest of the crankcase at 51.5° angles. When completely dry, push-rods and rocker covers are fitted as before. Next, a circle of copper wire, the diameter of the crankcase, is bent to shape, and where the two ends meet, one piece is bent back at right angles, so that when fitted this protrudes between No 1 and 2 cylinders, back towards the bulkhead.

Before fitting the bulkhead and engine, bend a piece of plastic covered wire into a circle, slightly smaller in diameter than the bulkhead, and again with one end bent out at right angles. This is glued between the fuselage and bulkhead, with the angled end to the bottom left of the nose, to form the exhaust pipe. Fit the propeller shaft inside the engine, and cement the engine to the bulkhead. A small rectangle of 1 mm styrene sheet is fitted between the two lower cylinders to represent the oil cooler. This part seen from the side is angled forward towards the propeller at the top end.

Now to the propellers. Unfortunately, the kit propeller is not the correct shape for either of these models. Firstly, cut or file the small spinner away, then for the 502 a general slimming down in both outline and section is all that is required, but the 505 propeller is rather more drastically altered. Remove the spinner, and then file the sides of the hub flat, to a width of approx 2.5 mm. Then, using a modelling knife, carefully scrape the edges of the blades down into a slim pointed shape. Now restore the pitch to the blades by again carefully scraping, following the pitch contours of the original moulding. Finish off with 0400 emery paper. The hub is now finished to a rounded section. A 1 mm length of 1 mm stretched sprue is cemented to the centre of the hub, and two thin discs (sliced from the same sprue) are cemented diametrically opposed (ie, top right bottom left of hub) to the hub, to represent the balance weights.



Above: A view of the completed MS 502 with Salmson engine, finished as in the drawing opposite.

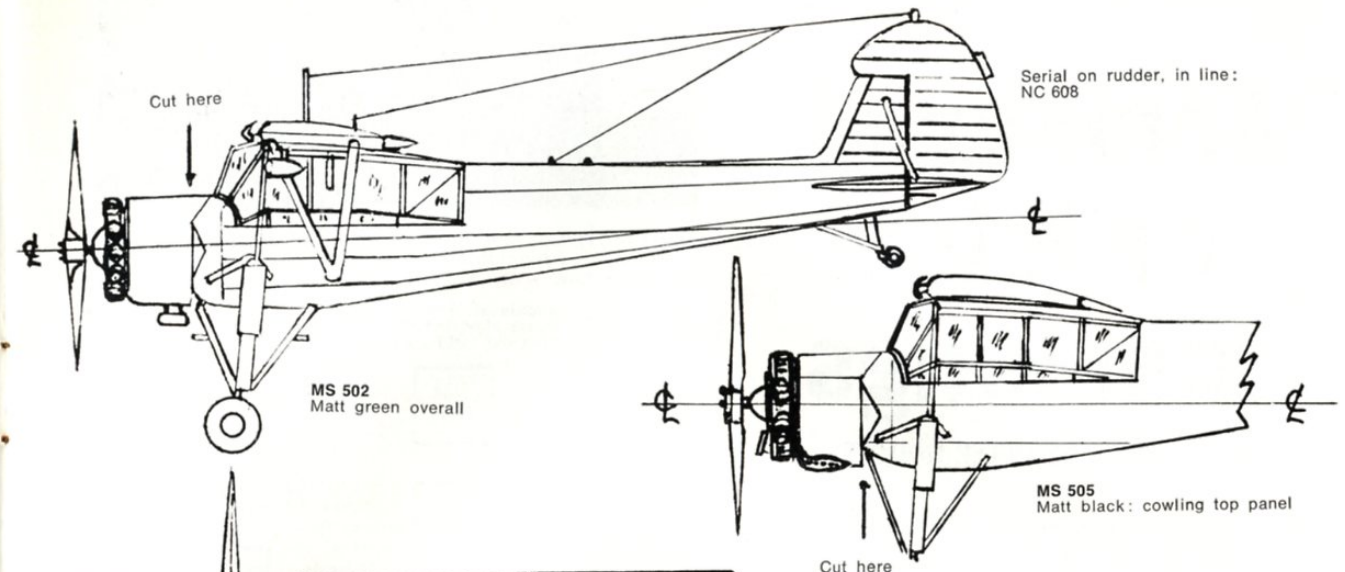
Back to the airframe now, where the assembly follows kit instructions, except that on the 505, part No 36 is not fitted to the tailplane. The resultant holes are filled with putty and sanded flush. When assembly is complete, the new wing struts are made from heat-stretched sprue and fitted between the existing struts and the wing lower surface. Similarly make and fit the additional struts to the undercarriage. A short length of stretched sprue (5 mm long) is then cemented under the port wing where indicated, to represent the fuel gauge. A further piece of sprue represents the pipe from gauge to cabin.

Cut a further four pieces of sprue 4 mm long and fit these to the undercarriage legs to form the steps. On the MS502, if the wheels are fitted back to front, they will give the true disc appearance as in the full-size aircraft. On the MS505, fit as kit instructions. Painting and finishing is straightforward on the 502, being dark green overall, matt, of course. The French markings came from the ABT MS500 sheet of decals. If you use the maker's designation decal, cut the second '0' away, and when positioned on the rudder the figure '2' can be drawn in, using Indian ink and a mapping pen. The wheel centres are grey.

The 505 is more complicated and the paint scheme was not completed when the photos were taken. The basic colour is French Blue (high blue gloss with a little matt dark blue). Tips of wings, rudder and tailplane are vermilion red (gloss red with a little matt yellow), divided from the blue by a white line, outlined each side with black. The leading edge slats are vermilion. The white areas on the fuselage can be cut from Yeoman solid transfer sheet or masked off with coloured Sellotape and the areas filled in with white paint (two parts white gloss, one part matt white). These semi-gloss colours look far more realistic than full gloss. The black outlines are best done with Blick or Letterpress dry print transfer, as are the registration letters. Wheel centres are vermilion. Engines are matt black with grey crankcases, and the pushrods are left polished metal on the 502, and gloss black on the 505. Exhaust pipe on the 505 is matt black. The 502 propeller is brown, whilst the 505's is silver with yellow tips.

You now have two out-of-the-rut Storchs to stand alongside your Argus powered versions.

Below: Two views of the MS 505 conversion, with registration still to be added (from Blick) when photographed. Colour scheme given opposite.



Serial on rudder, in line: NC 608

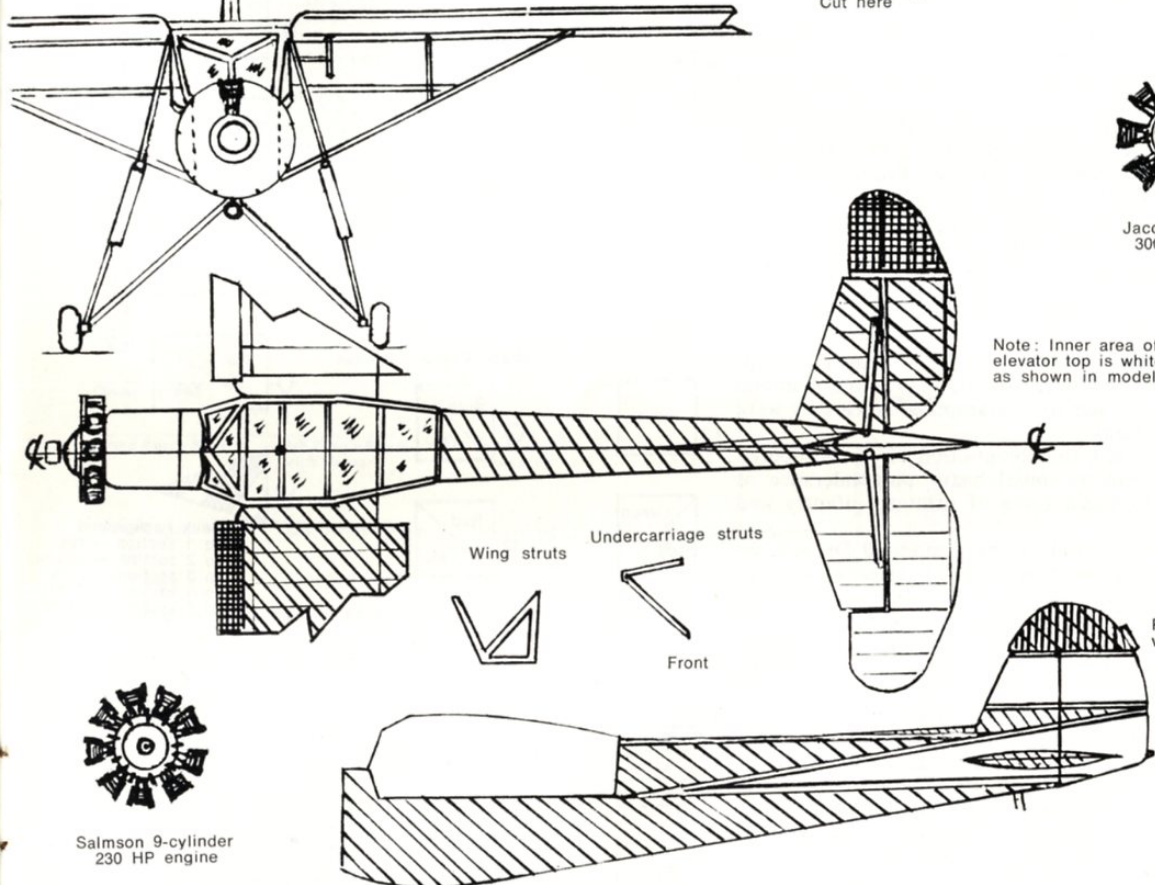
MS 502
Matt green overall

MS 505
Matt black: cowling top panel



Jacobs 7-cylinder
300 HP engine

Note: Inner area of
elevator top is white
as shown in model picture



Salmson 9-cylinder
230 HP engine

Colours for civilian MS 505



French
Blue White Vermilion

Morane Saulnier MS 502 and MS 505

1:72 scale

November, 1968

Armoured division markings

DESCRIBED BY PETER HODGES

IN his article on Camouflage and Markings in the April, 1966, edition of AIRFIX magazine, Chris Ellis dealt with some of the tactical signs which appeared on military vehicles in World War 2. The following notes deal with the composition of the Armoured Division, and with the various Arm of Service marks on the vehicles of the units which comprised it.

As a preliminary, however, I have drawn some of the distinguishing flags which were in use during the earlier part of the war; and the following is an interesting extract from the 7th Armoured Brigade's orders of 1941:

'All armoured vehicles which have wireless masts will wear pennants in the position of the day. Tanks wear a red-and-white sign, but some newly arrived may not have had them painted on. Armoured cars have no colour sign, but they show they are friendly by holding a flag out on their right.'

The geometric shapes denoting 'A', 'B', 'C' and 'HQ' companies were in use at this time, but 'HQ' was then a diamond shape and 'C' a circle, later to be transposed when they were used as squadron marks.

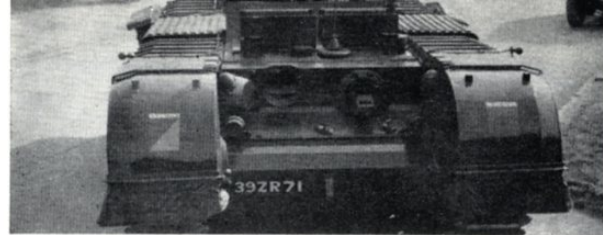
As the war progressed, the composition of the Armoured Division changed from an initial heavy preponderance of tanks, to a more balanced force of armour, infantry and artillery.

As will be seen from Table 1, the Armoured Division on the 1940 establishment had two armoured brigades, each of three armoured regiments and a motor battalion, with only one infantry battalion in the support group of artillery, engineers and the usual services. In all, the Division had about 350 tanks, and its own armoured car regiment of 60 armoured cars.

Experience in the North African campaign showed that even though each Armoured Brigade had its own motor battalion, the Division as a whole needed more infantry support than could be provided by the solitary battalion in the Support Group. The second Armoured Brigade was replaced by an Infantry Brigade, which took over the vacant serial numbers, Infantry Brigade HQ being allocated number 60 and the three Infantry Battalions numbers 61, 62 and 63. At the same time the Armoured Division's Motorised Battalion—often carried in M3 half-tracks—was re-numbered 54. There were now 172 tanks plus 14 AA tanks in the Division.

In 1943, further changes were made. The armoured car regiment was withdrawn and placed under Corps command, but the Armoured Division was given an armoured reconnaissance regiment in lieu, and the total tank strength rose

Continued on page 112



Above: Typical marking positions for British armoured vehicles; this Churchill VII APC, pictured post-war, displays the red/yellow RAC and the red School of Infantry flash.

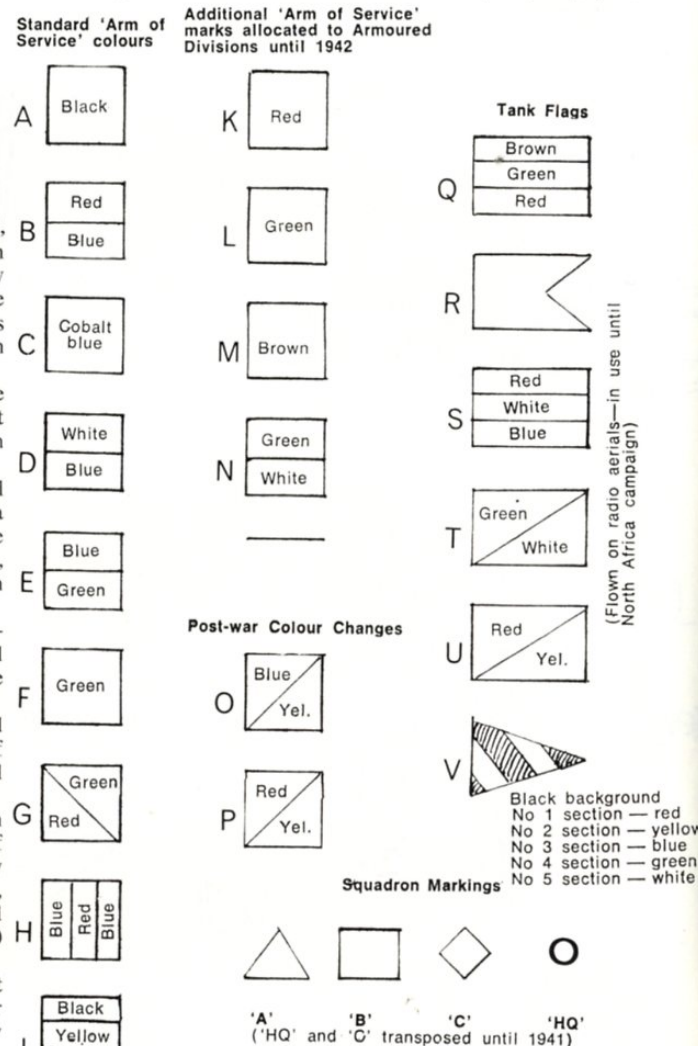


TABLE 1
STANDARD NUMBERING FOR THE ARMOURD DIVISION
(Two Armoured Brigades and one Support Group up to 1942)

Number (Superimposed)	Unit	Colour of square (Arm of Service mark)
40	Divisional HQ	Black
40	Divisional HQ Employment platoon	Black
40	Divisional HQ Intelligence Corps Sect.	Black
40	Divisional HQ Field Security	Black
50	Senior Armoured Brigade HQ	Red
51	Armoured Regiments in precedence	Red
52		
53		
78	Motor Battalion	Red
60	Junior Armoured Brigade HQ	Green
61	Armoured Regiments in precedence	Green
62	Armoured Regiments in precedence	Green
63	Armoured Regiments in precedence	Green
79	Motor Battalion	Green
75	Support Group HQ	Brown
76	RHA Regiment	Red/Blue
77	A/T Regiment	Red/Blue
78	LAA Regiment	Red/Blue
74	Infantry Battalion	Red
75	Troop carrying coy RASC	Red/Green
47	Armoured Car Regiment	Green/White
41	Field Squadron, RE	Cobalt blue
42	Field Squadron, RE	Cobalt blue
46	Field Park Squadron, RE	Cobalt blue
48	Armoured Divisional Signals	White/Dark blue
80	RASC HQ	Red/Green
81	Armoured Brigade Coy RASC	Red/Green
82	Armoured Brigade Coy RASC	Red/Green
83	Support Group Coy RASC	Red/Green
84	Armoured Divisional Troops Coy RASC	Red/Green

Note: The Arm of Service marks were normally worn on the off-side of the vehicle, with the Divisional sign on the near-side. Sometimes, however, the signs were transposed or combined together in one sign as in the 7th Armoured Division. The superimposed number was usually white.

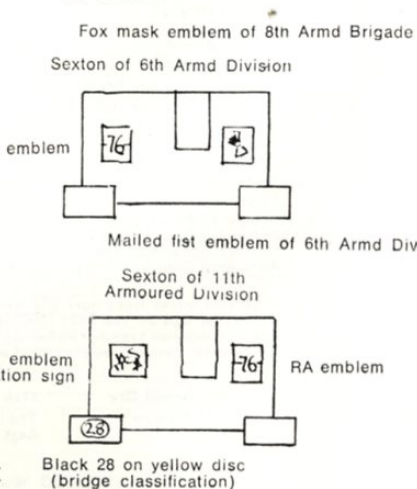
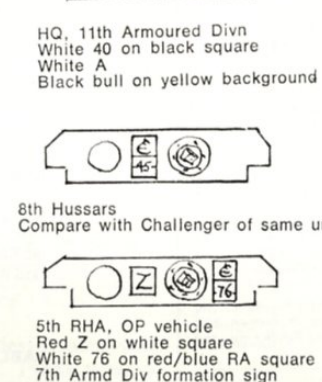
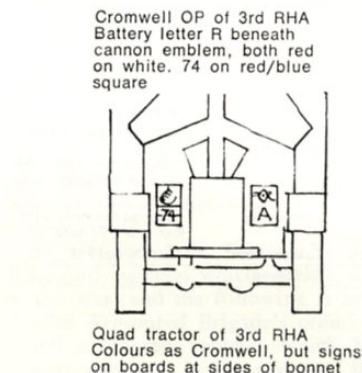
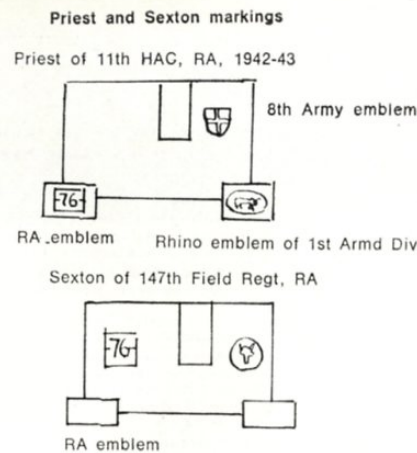
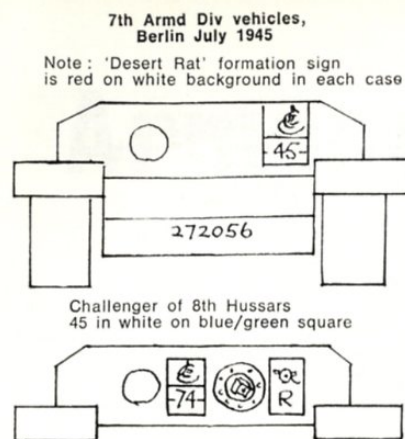
TABLE 3
Brigades which served in the 79th Armoured Division

Brigade	Regiments	Equipment	Remarks
1st Tank	11th RTR 42nd RTR 49th RTR	Originally CDL, but later converted to Buffaloes and Kangaroos	
1st Assault Brig, RE	5th 6th 42nd Assault Regt, RE	AVREs	
4th Armd	Royal Scots Greys 3/4th CLY 44th RTR 2nd KRRC (Motor Batt)	Sherman DDs	Independent brigade equipped with DDs for the Rhine crossing
27th Armd	13/18th Royal Hussars 1st East Riding Yeo Staffordshire Regt	Sherman DDs	Normandy Landing
30th Armd	22nd Dragoons 1st Lothian & Border Horse 2nd CLY 141st Regt, RAC	Sherman Crabs Crocodiles	Minesweeping and flame throwing brigade
31st Tank	7th RTR 9th RTR 144th RAC	Crocodiles	Withdrawn in August 1944
33rd Armd.	1st Northants Yeo 144th RAC 148th RAC 1st East Riding Yeo	Buffaloes	144th transferred to 31st Bde 148th left in Aug 1944 1st East Riding relieved 148th
	1st Canadian APC Regt	Kangaroos	Equipped mainly with Rams and Priests
	1st Fife & Forfar Yeo	Crocodiles	From Oct 1944
	11th RTR	Buffaloes	

TABLE 2 (Below)

Unit	7th Armd Div	11th Armd Div	Guards Armd Div	Principal equipment	Remarks
Armd Car Regt	11th Hussars	The Inns of Court Regt	2nd Household Cavalry Regt	67 Armoured cars 67 Scout cars	Daimlers (basic car) AECs (heavy troops) Staghounds (HQ car) Daimler and Humber scout cars M3 Half-tracks in squadron support troop
Divisional HQ				8 Cruisers 2 AA Tanks	Cromwells in 7th, Shermans in Guards and 11th Armd
Armd Recce Regt	8th King's Royal Irish Hussars	2nd Northants Yeomanry	2nd Armd Recce Batt, Welsh Guards	40 Cruisers 6 CS Tanks 30 Light Tanks 5 AA Tanks 8 Scout cars	Cromwells Challengers Honeys, Crusader AA, Centaur AA
Armd Brigade HQ	22nd Armd Brigade	29th Armd Brig	5th (Guards) Armd Brig	7 Cruisers 8 OP Tanks 2 AA Tanks	As Divn HQ above
Armd Regt	4th CLY	23rd Hussars	2nd (Armd) Batt, Grenadier Guards	55 Cruisers 6 CS Tanks 11 Light Tanks 6 AA Tanks 8 Scout cars (in each regt)	Cromwells and Fireflies in 7th, Shermans and Fireflies in Guards and 11th Armd Divns: Comets were issued to 11th Armd after the Rhine crossing. Most AA Tanks withdrawn soon after D-Day
Armd Regt	1st RTR	2nd Fife & Forfar Yeomanry	1st (Armd) Batt, Coldstream Guards		
Armd Regt	5th RTR	3rd RTR	2nd (Armd) Batt, Irish Guards		
Motor Battalion	1st Bn, The Rifle Brigade	8th Bn, The Rifle Brigade	1st (Motor) Bn, Grenadier Guards	80 Carriers and Half-tracks	Universal carriers M3 Half-tracks
Infantry Brigade	131st Infantry Brigade	159th Infantry Brigade	32nd Guards Brigade		
Regiment	1/5th Queen's	3rd Bn, Monmouths	5th Bn, Coldstream Guards	2" and 3" mortars 6 pounder AT guns	
Regiment	1/6th Queen's	4th Bn, KSLI	3rd Bn, Irish Guards		
Regiment	1/7th Queen's	1st Bn, Herefords	1st Bn, Welsh Guards		
Independent Machine-gun Co	No 3 Support Group, Royal Northumberland Fusiliers	2nd Independent M/G Co, Royal Northumberland Fusiliers	3rd Independent M/G Co, Royal Northumberland Fusiliers	Vickers M/Gs and 4.2" mortars	
Royal Artillery	3rd RHA	151st Field Regiment, RA	153rd Field Regiment, RA	24 (towed) 25 pdrs	
	5th RHA	13th RHA	53rd Field Regiment, RA	24 Sextons	
	15th LAA Regiment, RA	58th LAA Regiment, RA	94th LAA Regiment, RA	54 Bofors	18 Bofors were SP 24 17 pdrs were SP (Achilles or Archer)
	65th A/T Regiment, RA	75th A/T Regiment, RA	21st A/T Regiment, RA	48 17 pdr A/T guns.	

Note: In addition, each Division had its own supporting Services, ie, RE, Signals, RASC, RAMC, RAOC, REME, RCMP.



8th Hussars
Compare with Challenger of same unit

5th RHA, OP vehicle
Red Z on white square
White 76 on red/blue RA square
7th Armored Div formation sign

Divisional markings — continued

to 244 plus 34 AA tanks. The recce regiment's number was 45 on the standard blue/green arm of service square.

The Division was further enlarged in 1944 by the addition of extra tanks and also by an independent machine-gun company. It now had 310 tanks, plus 8 OP tanks and 25 AA tanks on the strength. In practice it was also allocated an armoured car regiment by Corps on a more or less permanent basis, and this effectively released the armoured reconnaissance regiment to make it the fourth regiment of the Armoured Brigade.

Table 2 shows three of the Armoured Divisions of the 21st Army Group in NW Europe, 1944-45. Notice that the basic tank of the 11th and Guards Armoured Division was the Sherman; that the 7th had Cromwells; and that all Divisions had Sherman Fireflies to stiffen up their fire-power. The Firefly was the fourth tank in a standard troop of four tanks, the other three being either Shermans or Cromwells.

Apart from the armour of the other Allied armies, which will not be dealt with here (except to say that the Polish Armoured Division was equipped with Cromwells), there were two other major groups.

The first, the 79th Armoured Division, comprised the Brigades of special purpose AFVs shown in Table 3. This was the largest Armoured Division in existence and because of its special duties, did not conform to the usual composition. Prior to the assault on the Rhine the 79th comprised five Brigades—a total of 17 regiments—with four times as many tracked and armoured fighting vehicles as a normal

Above: Typical marking combinations for the 1942-45 period on British armoured vehicles.

armoured division.

The second group comprised the Independent Armoured Brigades and Tank Brigades which were equipped with Churchills for infantry support, although in some cases Shermans were also used in the infantry support role, for which they were not entirely suited. One of the Churchill-equipped brigades was the 6th (Guards) Tank Brigade, who wore their own Brigade Formation sign, of a golden sword set in the centre of a diagonal band of blue-red-blue on a white shield.

The typical vehicle markings are taken from various sources, and mostly deal with the NW European campaign. From Table 2, it will be seen that a second field regiment RA was added to the Armoured Division, and this usually had the number 74 on the Arm of Service sign—denoting a regiment of towed 25 pounders, the number 76 being reserved for the Sexton-equipped unit (or Priests prior to the introduction of Sextons).

APPLICATION OF MARKINGS

Summarising the above, we get the following principal markings applicable to British army vehicles in World War 2.

Formation sign: The emblem, which could be partly heraldic, partly symbolic, or just 'concocted', which normally denoted the higher formation which directly commanded the unit operating the vehicle. In the case of most 'fighting' vehicles, therefore, this was the divisional emblem. Famous examples are the mailed fist of 6th Armoured Division, the 'Desert Rat' of 7th Armoured Division, the 'Eye' of the Guards Armoured Division, the black cat (Dick Whittington's by legend) of 56th (London)

Continued on page 116

AIRFIX magazine

Beaufighter with Merlins

Alan W. Hall makes a Mk II version from the Airfix kit

AS a further example of how left over pieces from one conversion can easily make up into another, I have chosen for my subject this month the Merlin powered version of the Bristol Beaufighter.

Readers will have seen how, starting with the Halifax II conversion, I have been able to use the spare engines to make a Lancaster II and now, to take things to their logical conclusion, am using two of the four discarded Merlin engines from the basic Lancaster kit to power a Beaufighter.

I hope that I have been able to show the beginner that he need not spend a considerable amount of money in order to enlarge his collection and that given patience and some research he can produce excellent replicas without going to the expense of buying several kits to cannibalise into one. Those who have experience in these matters will agree that every item not needed in one kit will eventually come in handy for another. So if you do strike off on your own the golden rule is *never* to throw things away!

The last two conversions have been relatively simple ones. The Beaufighter II follows this trend as the basic needs for change in this conversion are in the engines and tail unit. There's also some heat treatment of sprue needed, but as this is one of the first things the *ab initio* conversion enthusiast learns, I have not worried about the inclusion of this type of work.

Beaufighter IIs were used in quantity in the RAF during the early part of World War 2 when there was some doubt about the supply of Hercules engines being maintained. A total of 450 aircraft powered by Merlin XX engines were constructed at Bristol's Filton works and the first production aircraft entered service with Nos 604 and 600 Squadrons in April, 1941. Other units using the Beaufighter II operationally were 25, 125, 255, 307, 406, 456 and 488 Squadrons.

I found the most compact reference for this conversion in the Profile Publication No 137 on the Beaufighter. Photographs, details and three side views are given in colour and in the case of the aircraft belonging to No 54 OTU, Richard Gardner has given a plan view showing the position of the camouflage. Other information can be gleaned from William Green's *Fighters of the Second World War*. His 'Famous Fighters' series also deals with the subject fully.

STAGE 1 The two fuselage halves and the wing halves are joined in accordance with kit instructions. These are laid on one side to dry and in the case of the latter this should be for at least 12 hours because joints are apt to part if the full drying out period is not observed.

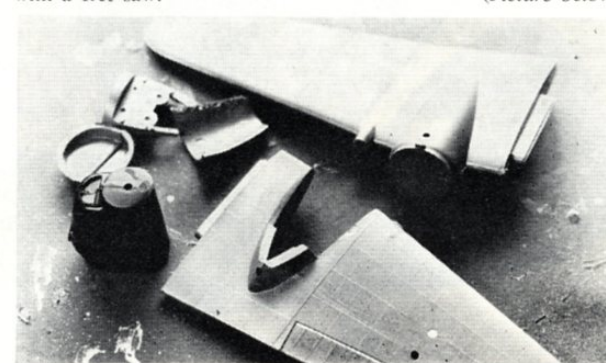
STAGE 2 The original engine nacelles on the Beaufighter wing are now removed as they are too wide when compared with the Merlin replacements. Not all of the nacelle was cut away, however. I measured the width of the Merlin against the width of the Hercules and where the two coincided, about 1/4 inch from



R2270, the first production Beaufighter II with B type roundels and no codes. Note the air scoop above the cockpit canopy, the partly overpainted panel in the transparency, and the extensive weathering leaving bare metal showing through the overall black finish. There is also a yellow gas-detector patch just ahead of the tail. This aircraft has the dihedral tailplane (Imperial War Museum photo).

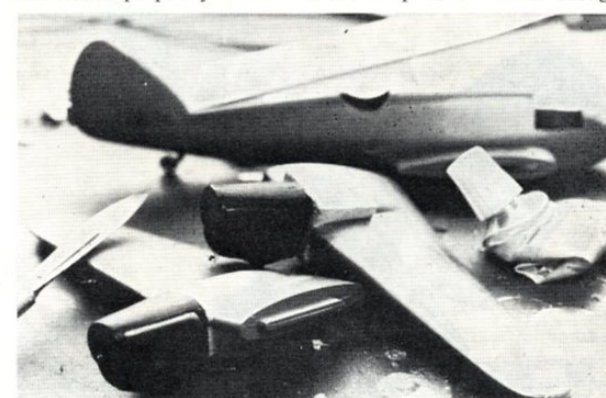
the rear, made a cut at right angles so that I was provided with an effective key on which to fix the balsa wood block used to replace the original plastic. The cutting operation which followed the line of the edge of the nacelle where it met the wing was done with a fret saw.

(Picture below)



STAGE 3 During the cleaning up operation, which involved the use of a file and sandpaper to smooth off the cuts made by the fret saw, I also removed the oil coolers on the leading edge of the wings. Sufficient plastic in the leading edge allows this to be done without making a hole in the wing, but if you do happen to make a slight indentation, reinforce the area with body putty, leave it to dry and then reshape the wing section later when waiting for another stage to dry out.

STAGE 4 A balsa wood plug which runs from the leading edge to the right angle cut at the rear of the nacelle is then inserted. I purposely made this too deep as I wanted enough



wood on which to work. The Lancaster nacelle is stuck on to the front of this, making sure that it lines up on the depth and

Scale drawings on next page
Instructions continued on page 116



Left: A Sherman in 1944 displaying typical markings: 79th Armored Div formation sign; red/white/red RAC flash; '40' indicating a divisional HQ vehicle.

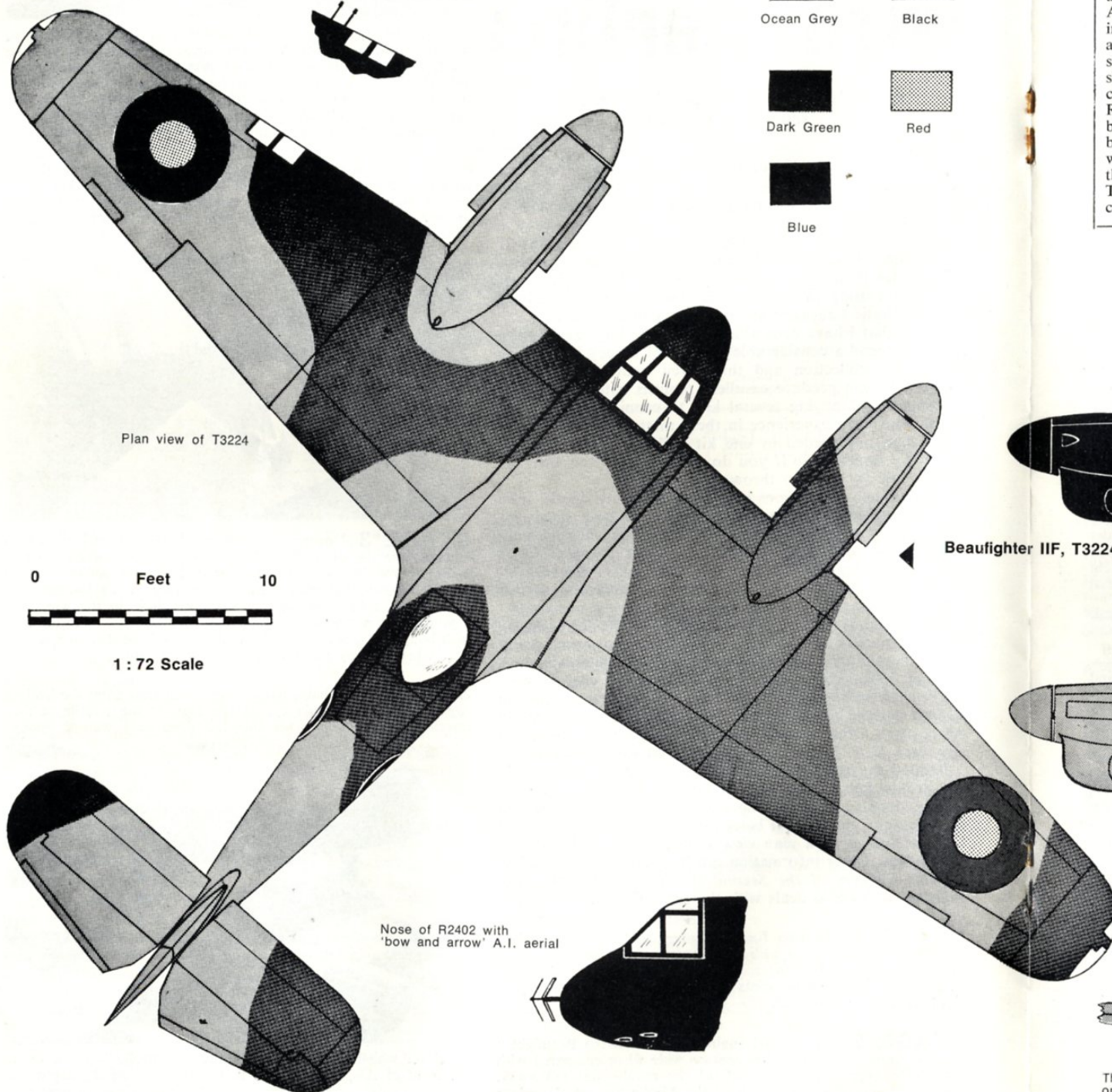
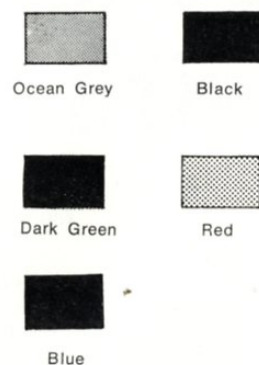
Beaufighter II — continued

Drawings by R. E. Gardner

Aerials on R2402
night fighter

Note that individual aircraft differed in small details; check pictures carefully when modelling a particular machine

All colours matt

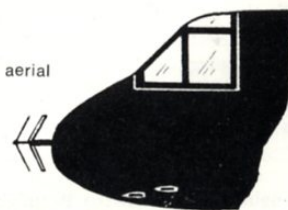


Plan view of T3224



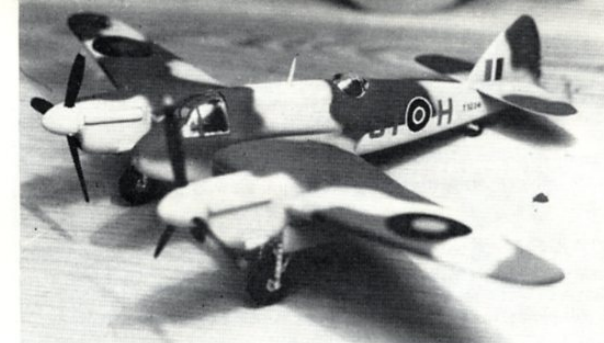
1 : 72 Scale

Nose of R2402 with
'bow and arrow' A.I. aerial



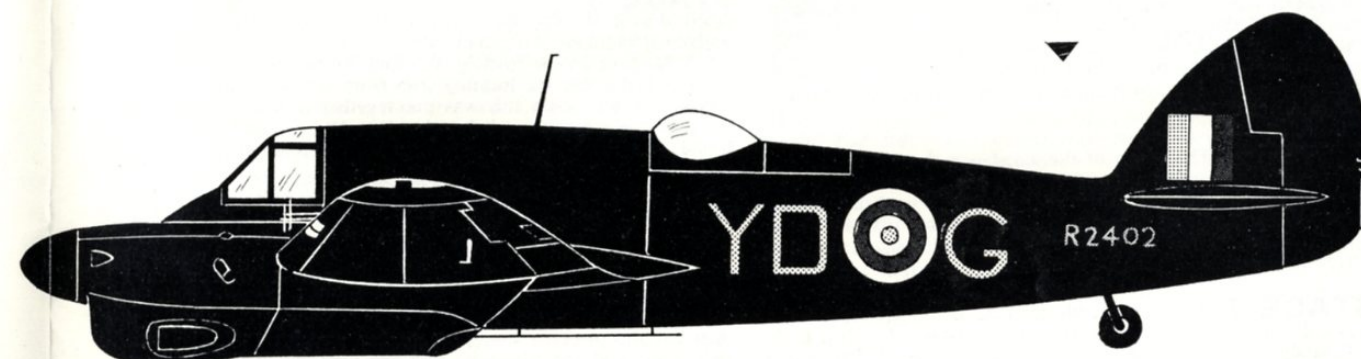
PAINTING AND CAMOUFLAGE

Most operational night fighters were matt black overall but the well-known aircraft from No 54 OTU, T3224, was my choice for a colour scheme. It should be noted that this aircraft did not display the nose radar aerials. M. J. F. Bowyer's article on the Beaufighter II in the March, 1963, issue of AIRFIX magazine has a photograph of a completed model in this scheme in addition to the drawings this month. There are also a number of alternate codes and serials given in the same article. Beginners should note that the Sea Grey Medium should be applied first and the green after this has dried. The colour came from the Humbrol Authentic Colour set No 1. RAF (European) reference HB.1 and HB.6. Transfers were basically from the kit. A matt surface was achieved by rubbing the gloss away with an ink rubber before the transfers were placed in water. Yeoman red transfers were used for the codes 'ST-H' and the serials were made up from Letraset. The March, 1963, AIRFIX magazine is long out of print and cannot be supplied.



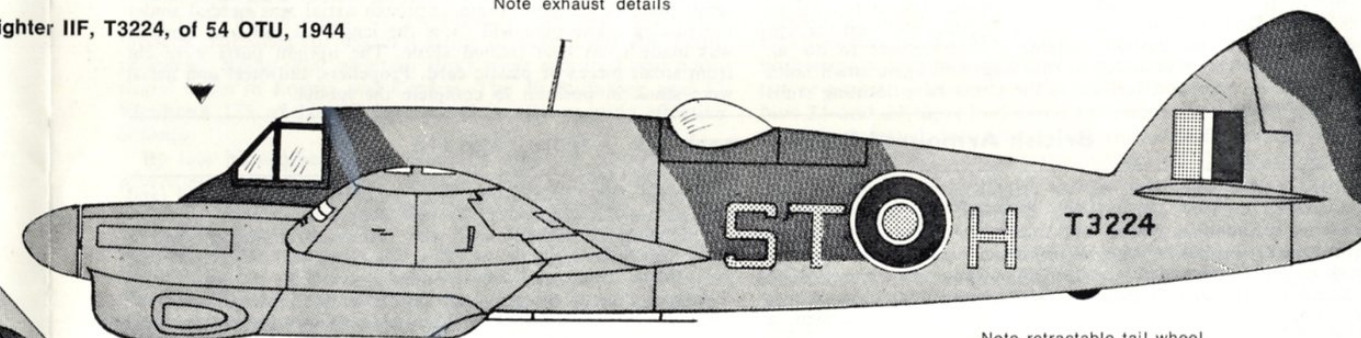
Completed model of ST-H drawn below. Roundels are used straight from the kit, as is the tail flash.

Beaufighter IIF night fighter, R2402 : YD-G of 255 Sqn., 1942



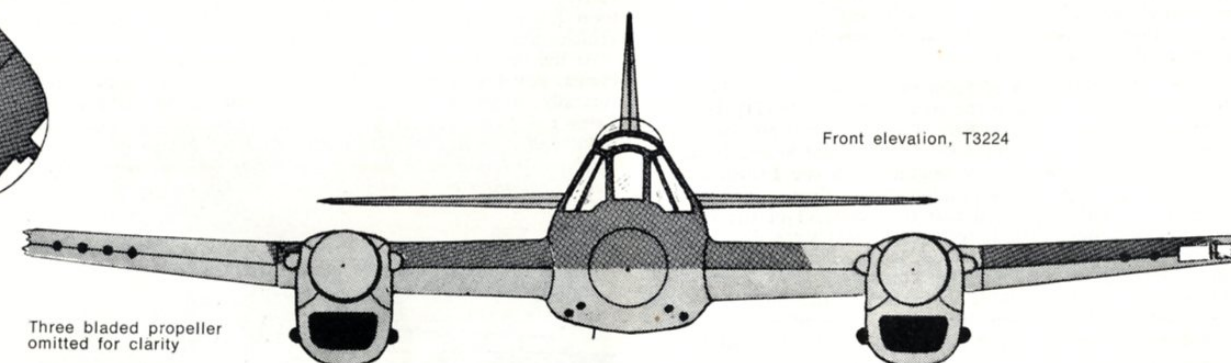
Note exhaust details

Beaufighter IIF, T3224, of 54 OTU, 1944



Note aerial on belly, starboard

Note retractable tail wheel



Front elevation, T3224

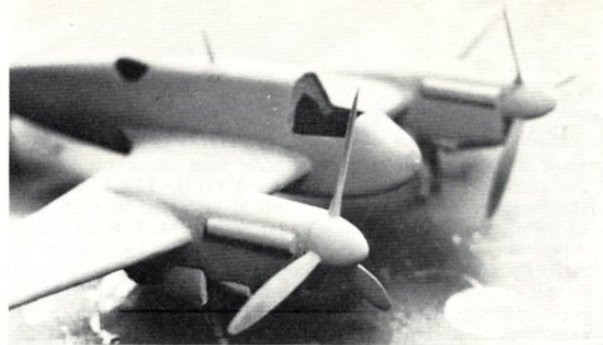
Three bladed propeller
omitted for clarity

width when compared with the front view drawing on the next page.

STAGE 5 When dry, the nacelles can be carved to their correct shape. It will be noted that as the width of the Merlin and Hercules vary (with the nacelle shape for the Merlin narrower), it will necessitate part of the balsa block being cut to follow the top of the wing section before the hump of the nacelle is reached. This can only be done by cutting down and sideways with a very sharp knife and finishing off with a file and sandpaper. This operation is possibly the most difficult of the whole conversion as you must get the division between the nacelle and the wing at a sharp angle and care must be taken to avoid cutting too deep. On the underside the nacelle is shaped so that the correct depth is obtained against the full depth of the Merlin engine and to do this I shaped the nacelle in the first instance ignoring provision for wheel wells. Once this was roughly completed I measured the height from the ground in scale size using the undercarriage legs and wheels from the kit. The resultant measurement gave me a point where I should cut the nacelle, remembering when I did so that sufficient thickness of wood had to be found to allow the undercarriage legs to be let into the surface. Finally, slots were cut into the sides of each nacelle to allow a fixing point for the undercarriage doors

STAGE 6 The whole of the wooden part of the nacelle is now coated with talcum powder and clear dope mixture and allowed to dry. Time and patience are needed to sand the nacelles down so that the joint line cannot be seen and it may be necessary, as in my case, to give the area a second coat of the filler before finally achieving a perfect match.

STAGE 7 Before the undercarriage doors are added the forward bump on those in the kit must be removed with a knife and sandpaper. The bump on the rear of the doors is left. When complete, the doors are stuck in position and the undercarriage legs added. Drill small holes to take the locating stubs on the legs and push them into position, adding a little cement to do so. The rear struts are also added at this stage and again small holes are drilled in the wood surface as the struts have locating stubs



Above: Close view of the Merlin nacelles grafted on to the remains of the Hercules nacelles. Note how the extremely careful finishing conceals any visible join between the plastic and the balsa.

on them. In my case I did not put the wheels in position at this point as I preferred to pre-paint these and add them after the rest of the model has been painted. There is less chance of the wheels being touched with paint from another part of the model if you do this.

STAGE 8 On some Beaufighter IIs the tailplane had dihedral as in the kit, but on my model I chose to have the early horizontal tailplane. To achieve this the locating stub was cut off, a 90° flat filed on the fuselage side and the two parts joined with cement. I also cut the locating stub from the wings as the joint was not perfect when this was put together in a dry run. After the stub was removed and the wing joined to the fuselage, it was found that the cleaning up process used to hide the joint line was easier.

STAGE 9 Final details were then added. The canopies were put in place (these were pre-painted as I found it easier to do this separate from the model). Radar aerials for the nose and wing extremities were made by heat treating sprue. When stretched to the required thickness and before setting, I bent the material over the corner of my vice to get the right-angle required and then cut the piece to length. A further piece was added at the right-angle and the whole let into the nose by firstly drilling a small hole. A standard beam approach aerial was needed under the fuselage. The plan will show the length of this and again it was made from heat treated sprue. The upright parts were cut from small pieces of plastic card. Propellers, tailwheel and aerial were stuck in position to complete the model.

British Armoured Division markings — from page 112

Division, the stylised 'HD' of 51st (Highland) Division, and the two crossed keys of 2nd Infantry Division. Vehicles of 'independent' brigades—ie, those not attached to divisions—carried their brigade formation sign. Well-known examples are the fox mask of 8th (Independent) Armoured Brigade and the sword on a shield of 6th Guards Brigade. Vehicles belonging to 'Army' or 'Corps' troops carried the army or corps formation sign, a good example being General Montgomery's Humber staff car which wore the 8th Army emblem in the Western Desert and 21 Army Group emblem in NW Europe. Finally vehicles of units administered by 'Commands' or 'Districts' carried the command or district emblem. An example was the 'flaming torch' emblem of Aldershot District.

Widespread introduction of formation signs did not take place until 1940 in Britain (and in the BEF in France) and 1941-42 in the Western Desert and elsewhere, though formation signs were widely used in the first world war. Since World War 2 incidentally formation signs have been continued in the British Army, and insofar as any standardisation goes, they are normally painted on the left, front and rear (ie, nearside) of the vehicle. During the inter-war period, formation signs were discontinued (with few exceptions) and individual units were identified by an abbreviation (eg, '1 CHES': 1st Cheshires) in 4 inch white letters usually on the sides of the vehicle, often inside a white circle. Individual unit identification in post-war years is standardised by a similar abbreviation (eg, 'S of I': School of Infantry) in black letters on a white strip painted above the 'Arm

of Service' sign. Sometimes extra identification is provided (and was pre-war) less officially, by unit badges on doors, etc.

The 'Arm of Service' sign with the number superimposed is most usually painted on the right, front and rear (ie, off-side) of the vehicle. Sometimes the number is omitted.

Almost without exception, all British service vehicles from 1939 to the present have carried a weight classification (or bridge plate) consisting of a yellow disc with a number depicting weight in tons superimposed. This is mainly to assist in routeing, etc, for convoy work to ensure that vehicles are kept to bridges and pontoon ferries appropriate to their weight. Frequently, however, vehicles are seen with the number omitted.

At the rear, low down, most British armoured vehicles carry a convoy panel of three black and four white vertical stripes painted centrally to give a 'station keeping' guide to following vehicles.

Below: A Centurion AVRE with markings displayed in the most usual order from right (off) side to left: bridge plate, Royal Engineers' 'Arm of Service' marking, serial, and 'MOD-administered' formation sign, a lion and crown.



Part 12: Fighters in the Far East War

THE campaign in the Far East presents one of the saddest stories in Britain's history. Everywhere it was a case of too little too late, or a wrong conception of the needs for defence—and its message for today is all too obvious. Inconceivably it seems that Singapore was entirely without any fighter protection until May, 1941, and that in India a few Blenheims and a host of biplanes were all that were available. The reverses in Europe in 1940 prohibited reinforcements going to the East, a region of almost no action. Overseas re-deployment was instead to the Middle East, preventing planned Hurricane deliveries further east. For defence the RAF looked towards North American supply.

Japanese strength and standard of equipment was obviously underestimated. Four Allied squadrons had been equipped with the outdated, under-armed Brewster Buffalo, which had to face a carrier force equipped with the legendary Zero fighter.

When the battle broke on December 7, 1941, the RAF had in Malaysia five fighter squadrons. These, it was argued, could be reinforced by others from the USA and the Netherlands East Indies. Britain's force had been planned to rise from 88 obsolete or obsolescent aeroplanes to 336 modern machines for which a string of new bases was being prepared. Radar and observer links were required and additional bases in Burma and Ceylon. The 40 Buffaloes, and 12 Blenheim 1Fs of No 27 Sqn, could hardly provide effective defence.

By late November, 1941, relations with the Japanese had deteriorated so that attack seemed likely against Siam and perhaps Malaya—and remotely against Singapore. In consequence squadrons moved to war stations to support a possible British advance into Siam. RAAF Hudsons and three Catalinas of No 205 Sqn meanwhile were to watch for 'enemy' shipping. Too late they came across Japanese transports off Malaya. At this time No 21 Sqn RAAF, and No 27 Sqn were deployed for Operation *Matador* against Siam, leaving Nos 243, 453 and 488 to defend Singapore.

At first light on December 8, 1941, enemy troops began to land on the beach of North Malaya and Blenheims were ordered to shoot them up at once. Operations by the fighters began at 03.00 hrs. Two Buffaloes strafed enemy barges near Kota Bahru and at 04.00 Singapore had its first raid by



A line-up of Spitfire VIIIs in 1944 trim.

November, 1968



Top: A line-up of Buffaloes in green/brown/Sky finish. **Above:** One of the few air-to-air photographs of Buffaloes in the Far East. The censor has been busy, but it is still possible to read the squadron letters as 'WP'. Unit not known (Imperial War Museum).

carrier-based aircraft. Attacks soon began on airfields with the object of putting them out of use but not of destroying them. In a matter of hours Nos 21 and 27 Sqn had only four aircraft each and withdrew to Butterworth. Their efforts had been ineffectual.

Short endurance prevented the Buffaloes from being of much help to our bombers. For 453 Sqn an even more demoralising situation awaited. Their task was to patrol over HMS *Repulse* and HMS *Prince of Wales*; they arrived to find both mighty warships had been sunk, and had only their destroyer escort to look after. Such was the enemy success that Nos 21 and 27 Sqn had again to retreat south to Ipoh over difficult forested territory. Meanwhile, Buffaloes of No 3 PRU flew useful reconnaissance sorties off the coast. A few days later, 453 Sqn moved forward to Ipoh, losing five of its number to crashes en route, and only six Buffaloes reached the field. Japanese raids soon reduced a revived 21 Sqn and 453 Sqn to a strength of four aircraft each. On December 23 all were withdrawn to Singapore. 21 and 453 Sqn had been very handicapped by lack of attack warning and poor facilities in general, although their presence was at least a morale booster for the troops.

State of the fighters on December 24 was as follows: 21 and 453 Sqn re-organising at Sembawang, 243 Sqn had 14 Buffaloes at Kallang where 488 Sqn also had 14 and a Dutch squadron had nine, with 27 Sqn also there sorting itself out. Desperate messages had gone to Britain for reinforcements which by January 8 should have included 51 crated Hurricanes diverted from the Middle East with 24 pilots. These were to operate from Kallang, and they arrived amid great excitement on January 13 for it was considered these could provide effective defence.

Meanwhile the Buffaloes soldiered on, facing the continued heavy Jap attacks. Twelve of them escorted Blenheims attacking barges in the River Linggi on January 15. Next day 15 Buffaloes shot up road movements between Tampin and Gemas. Four shot up troop barges on the Muar River, attacks repeated by half-dozen others escorting Vildebeestes

Continued on next page

Fighting Colours—continued

there on January 17. The attacks were repeated on the 18th when 14 aircraft operated. PRU Buffaloes were watching the repair of airfields and the build-up of Japanese squadrons upon them. No 27 Squadron's Blenheim fighters unsuccessfully attempted to halt raids on Singapore where the Hurricanes were being hastily assembled on dispersed sites. They entered combat on January 20, flown by pilots of No 17 Sqn and some from 135 and 136. With ground crews they were formed into 232 Sqn at Kallang.

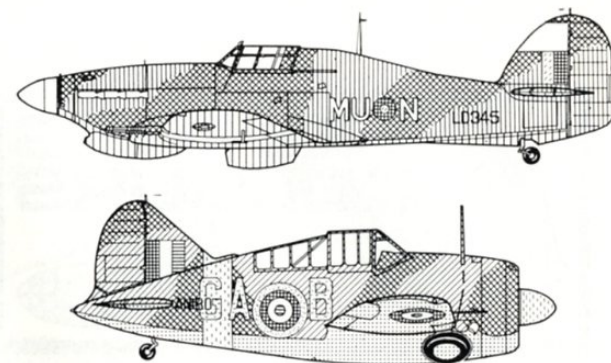
From HMS *Indomitable* another 48 Hurricanes were soon to be flown off and 39 more in crates were on the way. Buffaloes were continuing their strafing operations and patrolling around Muar, intercepting bombers when practicable. Roads and the beachhead were also strafed. Some of the Hurricanes were at Seletar by the 25th, their intended airfields having been overrun. Then came the landings at Endau. Fifteen Buffaloes and eight Hurricanes escorted bombers to the spot, and a second wave of Vildebeests had four Buffaloes as escort. The slow biplanes proved a headache for the escorts who, nevertheless, claimed 12 Zeros.

Next came a period of heavy raids on the Singapore airfields. Nos 21 RAAF and 453 Squadrons were being mainly used for army support, leaving 232, 243 and 488 Sqns to defend the island. On their first day of operations, incidentally, the Hurricanes claimed eight unescorted bombers without loss . . . if only there had been more Hurricanes. Usually the bombers were escorted, and against these formations the Hurricanes were flying three to five sorties daily. When fighting the Zeros, however, the Hurricanes were at a disadvantage. Their desert filters deprived them of about 30 mph although at over 20,000 ft they were superior in speed and climb but could be outmanoeuvred. Seventeen had been lost by the 28th and only 21 Hurricanes were available for fighting. No 27 Squadron had been withdrawn to the Netherlands East Indies and when the army fell back to Singapore Island only Kallang could be used, for all the other fields were on its north side. By the end of January, only eight Hurricanes of 232 Sqn and six Buffaloes of 453 were left on the island, the reinforcement Hurricanes being taken direct to Sumatra. After flying about 100 sorties the PR Buffaloes were finally knocked out on February 7.

On Sumatra No 258 Sqn was established with 15 Hurricanes. It had come from the Middle East in *Indomitable* on January 26 and flew some sorties from Singapore. During the first ten days of February the Hurricanes were almost continuously airborne. When Singapore fell on February 9 it was claimed that fighters had destroyed 183 enemy aircraft. A total of 30 later credited to the Buffaloes seems reasonable. Hurricanes claimed 100 destroyed for the loss of 45 to themselves.

A mixture of Hurricane Is and IIBs had so far reached the East. To improve the IIB's performance its outer four guns were removed. Thirty-nine more Hurricanes arrived on February 12. Two days later a massive airborne assault was launched on Palembang when the Hurricanes were airborne and out of W/T range. Soon the task was the escort of Blenheim bombers to prevent the Japanese from capturing the island, but on 15th withdrawal was forced and Sumatra was captured.

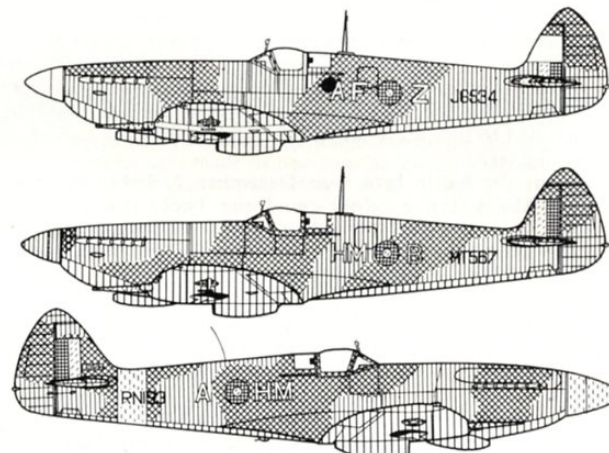
Finally came the attempt to hold Java. Fighters were now located at Tjililitan where 232 Sqn and the newly-arrived elements of No 605 Sqn were established with 25 Hurricanes. No 605's IIAs went into action on February 23 and they fought until Java was overrun.



0 5 10 FEET

RED	DARK GREEN	DUCK EGG BLUE
WHITE	DARK EARTH	SKY
BLUE	DARK SEA GREY	LIGHT GREY
YELLOW	MEDIUM SEA GREY	LIGHT BLUE

Drawings by A. M. Alderson



Above, top to bottom: Hurricane Mk IIC of No 60 Sqn, LD345, complete with white wing identity bands and other white trim. The squadron codes were 15 inches high and fin band 18 inches deep. An interesting feature of this and all the Spitfires illustrated here is that the fuselage and wing roundels had an outside diameter of 15 inches; the inner pale blue ring was of 6 inches diameter; this also applies to the Hurricane. The Brewster Buffalo AN180 has the earlier colours similar to those of home-based fighters. Its camouflage pattern appears to have been non-standard for a single-engine fighter, but this applied to other Buffaloes. Note that the Sky band and spinner differs much in shade from the duck egg shade (blue or green?) of the under surfaces. A trio of Spitfires, the top wearing late war colours with white trim and wing and tail fin and tailplane bands. JG534 at the top shows a non-standard camouflage pattern. MT567:HM-B has the usual pattern and is in 1944 finish. RN193, a Mk XIV, shows the post-war scheme, and is of interest in that it has a small white fin serial.

The aircraft and their colours

All the fighters engaged in the period December, 1941, to February, 1942, were similarly painted. They had dark green and dark earth upper surfaces with Sky (duck egg green shade) under surfaces except perhaps some Hurricanes with

lighter shades of Sky. Code letters (when carried) were medium grey placed with the unit letters forward on the port and usually aft on the starboard side of the fuselage. Serials were black, spinners and rear fuselage bands Sky. Roundel types were as for home based fighters.

Relatively little has, not surprisingly, survived concerning the aircraft engaged in the campaign, but there follows a listing of some aircraft used:

No 21 Sqn Royal Australian Air Force: Buffaloes used included AN170, AN171, AN174. Unit probably coded GA (and if so GA-B:AN180 may be added to the list).

No 243 Sqn, examples used being W8147, W8179, W8199, W8238.

No 453 Sqn possibly coded FU; formed October, 1941. Examples W8160, AN184, AN211.

No 488 Sqn formed October 1941. Examples used included NF-U:W8198, NF-O:W8138 and AN187, '189, W8135, '8171, '8186, '8191, '8195, '8200.

No 27 Sqn; no details known. Used Blenheim IF.

No 232 Sqn coded EF, No 242 Sqn briefly existing before becoming part of 242 Sqn probably coded LE, and No 258 Sqn coded ZT.

Burma and India

Japan's onslaught on Burma began around Christmas, 1941. Two terrible raids on Rangoon killed over 7,000 of its inhabitants. To defend Burma seven airfields had been built, reinforced by six landing grounds. For the fighters there was a serious disadvantage since mountains to the east prevented early warning. Defence lay entirely in the hands of the 16 Buffaloes of No 67 Sqn which included W8135, '8138, '8168, '8191, '8195, '8198, along with American P-40s guarding the Burma Road to China. Object of the Japanese attacks was its entry point, Rangoon, and the aim was to cut supplies to China. During those frightful raids the fighters fought well and claimed 36 of the enemy, an amazing achievement considering there was only one radar station, virtually no early warning and the most primitive communications system. Thirty Hurricanes were hastily brought in during January, and No 67 Squadron re-equipped for exhaustive fighting next month defending Rangoon. But the Japanese could not be held anywhere in the East and soon struck into Burma. Rangoon fell and all that remained of the fighter force—three Buffaloes and 20 Hurricanes—was forced to withdraw to India under terrible conditions. Here the defensive force was re-organised and included Nos 17 and 67 Squadrons using Hurricanes based for a time on the forward base on Akyab which was heavily raided on March 27. After this only 13 Hurricanes remained. By April the fighters were committed to the defence of Calcutta.

Indomitable ferried more reinforcements in the form of Hurricane Is and IIs of Nos 30 and 261 Squadrons for the defence also of Ceylon from Ratmalana, Trincomalee and Colombo. These bases gave fighter cover to the Royal Navy. A tremendous fight was waged over the island on April 5, when 18 enemy aircraft were claimed for the loss of 18 of the 36 Hurricanes (Mks I and IIB) of Nos 30 and 258 Squadrons. The Navy took a hammering and 261 Sqn fought

Below: Spitfire VIII, AF-Z:JG534, in 1945 markings.



Top: The inscription on the bomb dates the photograph here as circa December, 1944. White bands and codes are well shown . . . but which squadron is 'GO'? (Imperial War Museum photo). **Centre:** Another Thunderbolt 1 in SEAC trim coded AD-R, unit not known (Photo by D. Reeves). **Above:** KL859 of No 60 Sqn in natural finish with black identity bands and bars, also black codes T:MU. Standard size roundels.

another fierce battle around Trincomalee on April 9 but the island was clearly going to hold out.

Radar units had now been set up in India so that when the Japanese began raids on April 6, the Hurricanes had early warning. Soon the situation calmed as the Japanese reached the border of India and paused for breath. For many months the fighters stood by to repulse another great attack but the summer came and went with nothing major materialising. By June, 1942, Hurricanes equipped Nos 17, 30, 67, 79, 135, 146, 258 and 261 Sqns, in India and Ceylon.

A few Japanese bombers had made a night raid on Calcutta in January, 1942, and caused panic amongst its inhabitants. At once a few Beaufighters arrived to halt the night raids, going into action on January 15/16. Four nights later, with sore losses to heal, the enemy raids halted. Against the A.I. equipped machines the enemy was powerless to achieve anything.

Throughout 1942 the Middle East war, swinging to and fro over the desert sands, dictated to a large extent the strength of the forces in India. Supplies intended for the Far East often went no further than North Africa where Rommel's prowess had shaken the British. All that could still be spared for India were Hurricane IIs, a type largely withdrawn from offensive operations over NW Europe. The supply of Spitfires was still insufficient to allow any to go to India except for PR duties. Eventually the defensive strength there was set at six Hurricane squadrons; 1943 saw the deployment of Beaufighter VIs for nightfighter duties.

The fighter squadrons came much into their own when Wavell launched his First Arakan Campaign, the aim then

Continued on next page

being to capture Akyab. Hurricanes distinguished themselves in close support work, but the strength of enemy land forces nullified the army's efforts. Meanwhile, other fighters supported the Wingate enterprise when the Chindits first campaigned, an exciting aspect of operations, halted when the June monsoon came. Hurricanes had given useful escort to the supplying Dakotas.

Hurricane deliveries were now sufficiently large to permit them to replace such aircraft as Blenheims, and they were ideally suited to the tough conditions of operation, using guns and bombs. Nos 11, 34, 42, 60 and 113 Squadrons were equipped with them. Early in October, the first Spitfire VCs arrived for Nos 136, 607 and 615 Squadrons. At last the Mohawks of No 5 Sqn (eight had been India's sole defence force at one time) could be replaced after they had put up some stiff fighting. Another Buffalo squadron, No 143 (eg, AN124, W8246), received Hurricanes, too.

Greatest of the needs in this theatre of operations was for transport aircraft and these were now arriving in the form of Dakotas. The fighter types sent there were essentially schemed for operations in the defence of Britain. They lacked range and needed to be tropicalised and also to be backed by early warning stations, etc. One of the great success stories was that of the Beaufighter which immediately proved successful and soon became known to the Japanese as 'Whispering Death' on account of its quiet approach.

The arrival of the Spitfire was, perhaps, the most successful event of all for it took such a heavy toll of enemy fighters and bombers bold enough to venture near or over India. Then the Japanese brought along strong fighter cover at high altitudes—only to find that in January, 1944, the Spitfire VIII had arrived. It had a top speed of over 400 mph and could fight at up to 40,000 feet. British air superiority was now unquestionably gained, and by what was possibly the most refined Spitfire of all.

Our strength was well apparent in the Second Arakan Campaign when Hurricanes Mk IIB, IIC, IID of No 20 Sqn and the Spitfires fought so well. The Japanese provided a strong distraction in the Imphal and Kohima regions in March and April, 1944, and in only 16 days 2,200 sorties were flown by Hurricanes of four squadrons in the ground attack role against the 31st Division at Kohima. Around Imphal the Hurricanes of Nos 11, 28, 34, 42, 113 Squadrons fought a bitter battle. Then came the support for the Second Chindit Campaign and massive support for the second thrust into Burma which, despite the monsoon, led to the capture of Rangoon. And still it was the Hurricanes that were bashing away at the enemy whilst Spitfire VIIIs maintained air supremacy. Battles to clear Burma continued far into 1945.

By then the picture of equipment had changed. The Republic Thunderbolt was at hand, for in 1944 seven squadrons equipped with the type, Nos 79, 123, 134, 135, 146, 258 and 261, and others were to follow. Nos 67, 136, 273 and 607 all had Spitfires by mid-1944 and 60 Sqn was flying Hurricane IVs. Three, Nos 17, 20 and 28, were to soldier on another year with a mixture of Hurricane IICs and IVs. Thunderbolts proved useful in the role the Hurricanes had adopted and Spitfires, too, sailed in as fighter-bombers as the war reached its concluding months. There was no need to invade Malaya; the arrival of the nuclear age halted the fighting in time. And still Nos 17, 20 and 28 Squadrons had Hurricanes.

When production permitted, the Spitfire XIV made its debut in the East and in the spring of 1945 the FRXIV reconnaissance fighter with a rear fuselage oblique camera.



Immediate post-war trim on Spitfire XIVs of No 132 Sqn. FF-B: RN133, the squadron commander's aircraft, is nearest, carrying his pennant marking. RN190: FF-J is in the far distance. As with many SEAC roundels the fuselage marking on RN133 shows that it is the European type suitably doctored (Imperial War Museum).

Markings of the aircraft

Once the Buffaloes and early Hurricanes had ceased to be, a change in colouring was soon apparent. Well into 1945 there were Spitfires, Thunderbolts and Hurricanes in SEAC with dark green and dark earth upper surfaces with deep blue under surfaces. Some are recorded as having under surfaces a dark shade of grey, too. Another change concerned code letters which in 1943 were replaced by a smaller size, often 18 inches high but sometimes only a foot high. In the middle of that year (officially on June 24) a blue and white roundel was adopted which frequently appeared as roundel blue and a pale shade of blue 16 inches in diameter and with a six inch white centre disc. Two fin stripes, blue and white, each eight inches wide, were applied two feet high on the single-engined fighters. Code letters were positioned as usual on home-based fighters. Sky fuselage bands were sometimes applied and spinners were sometimes white, although on some fighters both were white. For a while the fuselage band was then painted, and often never applied. By 1945 some spinners were dark sea grey, the rear fuselage bands had gone and white wing and tail bands came into vogue. Thunderbolts had 28-inch wide bands around the inner wing section, 18-inch wide bands around the tailplane and across the fin and a stripe around the cowl leading edge of 17 inches wide. Similar markings were applied to the Hurricanes and Spitfires, from about mid-March, 1945, but officially at any rate they did not include a white nose.

Thunderbolts were being supplied in natural finish during the final months of the war. In place of white noses and wing and tail stripes these had black trimmings and code letters. They featured a black or olive anti-dazzle panel. An interesting feature often seen was the application of the serial in small characters to the fin as well as to the fuselage. 1945 roundels and flashes invariably featured the pale blue colour in place of white.

It would be impossible here to list all the fighters that were sent to South East Asia Command. Most of the Spitfire VIIIs were shipped there, and almost all of the Thunderbolts. Mk I aircraft with the old 'razor back' carried the serials FL731-850 and HB962-HD181. Mk IIs with teardrop canopies were HD182-301, KJ128-367, KL168-347, KL838-887.

The squadrons

Listed here are the relevant fighter squadrons which operated in the Far East and their respective equipment:

Sqn	Unit letters	Type	Serial	Notes
5	?	Mohawk IV	?	12.41 to 6.43
		Hurricane IIC	HW801	6.43 to 1944
	OO ?	Thunderbolt I/II	?	1944-45
11	?	Hurricane IIC	B-LB796	1943
		Spitfire VIII	?	1944
		Spitfire XIV	?	1945
17	YB	Hurricane IIC	BN540	in use 1943
		Hurricane IVC	HV798	
		Hurricane IIB	BN699	
20	?	Hurricane IID	HW676	in use 1943
		Hurricane IIB	BH134	
28		Hurricane I, II	?	
30	RS	Thunderbolt I, II	HD286:G	
34	AD ?	Hurricane IIA, B	?	
		Thunderbolt I, II	KL200	
42	AW	Hurricane IIC	KZ244:C	in use 12.43
		Thunderbolt II	KJ316:Y	in use late '44

Continued on page 130

NEW BOOKS

REVIEWED FOR MODELLERS

Modern soldiers

WORLD UNIFORMS IN COLOUR: Volume 1, Europe. Published by Patrick Stephens Ltd, 9 Ely Place, London EC1. Price 30s.

DESPITE the large number of books published on military uniforms, relatively few deal with those which are currently worn by the armies, police forces, and other units of the world. This book fills the bill very well, since it covers just about all the dress uniforms we can think of and a lot more we had not heard of. It has colour plates on every page—more than 70—and plenty of illustrations of badges and emblems, plus brief but interesting details of all the regiments, uniforms, and units involved. The original was published in Italy, but this is, of course, an English edition. Coverage is excellent, the colour drawings are accurate and photographic rather than impressionistic and, all in all, the uniform enthusiast gets good value with plenty of figure conversion ideas suggesting themselves to the modeller. All European nations are included plus the crack units—even the Kremlin Guard—though combat dress is not featured. Coverage of British units is particularly good, even though one or two of the regiments featured have just been, or are about to be, disbanded in the latest clumsy defence reductions.

Aircraft trio

SE 5A, by Charles L. Bourget; JAPANESE CODE NAMES: JAPANESE AIRCRAFT INSIGNIA, CAMOUFLAGE, AND MARKINGS, both by Richard M. Bueschel. All available from Motor Books & Accessories, 33 St Martins Court, London WC2. Price 17s each, plus 1s 6d postage.

FIRST of these three books gives the usual monograph treatment to the famous SE 5A fighter, with brief history, lots of pictures—some very rare—and some good scale drawings and interior shots. It's quite well produced, though its rather high price (for only 24 pages) will unfortunately put it out of the reach of many who would buy it if it was only half as much.

The same remark applies to the other two publications which are uniform in style. They each have lots of rare pictures and the book on code names is particularly useful since it identifies each Japanese World War 2 aircraft by its full Japanese designation and its Allied code designation. There are interesting pictures of, for instance, the Tabby, or Nakajima L2D Type O, which was a licence-built DC-3, and the Thalia, which was a licence-built Lockheed 14, both suggesting ideas for model finishes.

The colour scheme book includes colour illustrations on the inside covers plus a summary of the development of Japanese camouflage. Once again, it's a useful little volume with plenty of rare pictures, including a fine shot of a captured Havoc under test.

Spanning the years

CONQUERORS OF THE AIR, by C. Demand and H. Emde. An edita book published in UK by Patrick Stephens Ltd, 9 Ely Place, London EC1. Price £9 10s.

THIS is a big book, both in size (200 pages) and in scope, since it sets out to cover the evolution of aircraft from 1903-45. It does this by taking 14 famous episodes or epochs along the way, from Santos-Dumont's Demoiselle and its contemporaries, through two world wars, the pioneering years of the 'twenties and 'thirties, and ends with the coming of the jets. The approach is essentially 'popular' and, indeed, even in a book this size it would be difficult to take everything in in anything but a 'fast gallop' through the years. The 'milestones' are well recorded

in a very readable way, and the text is well supported with scores of lavishly produced drawings in colour mostly, but with others in black and white. Most of the drawings are in 'Profile' style, the early and inter-war types being very well done. Indeed, they fill quite a gap since there is still surprisingly little in print of use to modellers for these particular periods of aviation history. The drawings of the types like the Wright Flyer and Antoinette are most exquisite, as are later historic aircraft like the 'Arc-en-Ciel' and Ford Trimotor. The World War 2 (and to a lesser extent World War 1) periods are less happily covered, however. The authors (who are American) are obviously none too well up on RAF and Luftwaffe camouflage and markings and make some sad errors of colour on such types as the Spitfire, Lancaster, and Me 262, to mention just a few. MAP Dark Green, for example, changes in shade from bright green to slate grey from drawing to drawing, serials get omitted, as do fin flashes, and 'C' Type roundels appear with white or yellow outers—obviously misinterpreted from half-tone prints. The book is most luxuriously produced, however, as reflected in its price, and useful for the early types it covers well. Not many readers will be able to afford it, but *Conquerors of the Air* is worth looking for in your local library.

First war aircraft

FIGHTERS 1914-19: BOMBERS 1914-19, by Kenneth Munson. Published by Blandford Press, 167 High Holborn, London WC1. Price 18s each (two volumes).

THESE are two excellent books which have obviously been produced with the modeller in mind. Their content is good but the small size precludes the inclusion of full three-view drawings. In each case the colour illustrations are done in plan view showing the upper surfaces on the right-hand side of the silhouette and the under surfaces on the left. The model maker is left guessing, therefore, as to what happens on the other side. There are no front views.

The choice of colour scheme for the 66 bombers and 80 fighters is first rate. There are many that have not been seen before and this alone will want to make the enthusiast purchase the book. Where possible squadrons have been identified and this too is of value. Each drawing has its own descriptive matter at the back of the book containing a short history and service record of the aircraft.

The two volumes are the fifth and sixth of the series being produced by Blandford and the standard of reproduction of drawings has improved a great deal since the first volume was available. At a price of 18s these books are cheap enough for almost any pocket.

New from Aero

THE LUFTWAFFE IN WORLD WAR 2, by Uwe Feist and Rene Francillon.

THE SLYBIRD GROUP, by Kenn C. Rust and William N. Hess. TIN GOOSE—THE FABULOUS FORD TRIMOTOR, by Douglas J. Ingells.

Price 36s 6d each book, including postage. FOCKE-WULF 190A, by Eberhard Weber and Uwe Feist. Price 24s 10d, including postage. All published by Aero Publishers Inc, and available (outside USA) from W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6.

TOP of this list comes the first of a new series called 'Aero Pictorials'. *Luftwaffe in World War 2* contains over 100 pages entirely devoted to pictures, most of them very rare and hitherto unpublished. They are not just pictures of aircraft either—most show what went on behind the scenes on the ground, so if you want to get some of that essential 'atmosphere' for airfield models like aircraft being armed, serviced, or fuelled, you'll find plenty to satisfy you here. In addition just about every picture includes some most helpful details for modellers of Luftwaffe aircraft—both internal and external. A most useful volume this.

By contrast, the second book is a highly detailed operational history of 353rd Fighter Group, the famous 'Slybird' Group of 8th Air Force in World War 2. About two-thirds of this volume is text, data, mission details, and so on—all very readable—and the rest is made up of scale drawings, colour schemes, and some

Continued on page 130

ROMAN FRIENDS AND FOES

BY BOB O'BRIEN



FOR this article we deal with a certain people—one which has been long in the lands of the Eastern Mediterranean, and once burst out and established an Empire which stretched from Spain to Eastern borders of the old Persian Empire. These were the Arabs, who in the period with which our models are concerned were anything but united, but were a number of small kingdoms and tribal groups troubled by feuds and differences which in some cases remain in being today.

The Arabian desert, with its thinly scattered tribes and Arab kingdoms, fringed the area of the Fertile Crescent which stretches along the coast of the Eastern Mediterranean, swings round to the East through Syria and then continues on its way down the lines of the Tigris and Euphrates. In this area many of the oldest civilisations grew up, flowered, and then went under to a fresher order, or in some cases, to the raiders from the mountains to the East and North, or to those from the deserts and steppes of Asia and Arabia. Any invader from the East wishing to move to the sea would have the Arabs on his left flank all the way, and in the same way anyone wishing to strike eastwards would have them on his right. When the big Empires were strong, their policy was to buy off the most troublesome, now and again try to punish the more enterprising, and in many cases enlist the desert warriors in their own armies, as light cavalry, scouts and light infantry and bowmen, so that one could find Arabs on both sides in an encounter between Romans and Persians.

We will now deal with the conversion of the types in the Airfix Arab set to these light auxiliary troops of the Ancient period.

Arab Infantry

One thing that has changed little over the years is the costume worn by the desert dweller, so that the figures in the set need little or no alteration to dress. The conversion of the run-

Part 2: Arab Auxiliaries

ning figure will result in two types, a spearman and a swordsman, and as the procedure is similar for both, they will be dealt with together.

The rifle must be cut away, and the bandolier shaved down so as to 'lose' the cartridges. A small hole is then drilled in the right hand to take either a sword or a spear. The 'sword' is made from a medium thickness pin, with the head and the extreme point cut off to leave about 12/13 mm. It is then filed as flat as possible for all except the end 3 mm which will be pushed through the hole in the hand. The complete sword is curved slightly, pushed into place in the hand, adjusted to a suitable position (see diagrams), and secured by a touch of Araldite or similar glue. A scabbard of flat plastic strip is then glued on to the figure on the left-hand side. This scabbard should be curved slightly to match the sword. The figure drawn has a small circular shield added, but this is my own particular fancy, and the shield can be of a different shape, or left out altogether.

The spearman has a spear of wire a little under 1 mm thick, and 35/36 mm in length. The spear is pushed through the hole in the hand and then into a hole in the base, and the whole figure will have to be bent a little backwards on the base, as the original position shows the figures leaning well forward, and left in this position the spear is liable to unbalance the model. As a secondary weapon this man would carry a sword and this should be represented by a scabbard made as for the other figure, and glued at waist level. Again, the shield is optional.

These figures would generally be painted in light colours, at least as far as the main garment is concerned, with the headdress of a different colour. The figures shown are coloured, for the swordsman: pale yellow with orange head covering and a blue headband and all belts and scabbard in tan. The shield can be painted to

choice, for instance dark green with a device in red. The spearman is a rather duller looking character, with his main garment of matt khaki mixed with cream, and a dark red head covering. When painting faces for these figures, darken up the normal flesh colours with a touch of earth and red to get the right effect.

Camel Archer

The Airfix camel riders as they are supplied in the set can be used with only the following alterations:

- (1) Cut away rifle, if carried.
- (2) Make up a quiver from plastic, 8 mm long x 2 mm wide and tapered slightly, then glued as shown.
- (3) Cut off the left arm close to the shoulder and replace with the left arm of a Robin Hood archer—use a portion of a pin to attach the arm securely, as shown in the sketch.

Painting this figure can be to choice—my riders have an orange robe with a maroon headband, while the camel saddle and trappings are matt blue, yellow and green, with maroon trim. Belts are tan, as is the quiver, but for those who fancy a bit more colour, pieces of equipment such as these can be decorated with a different colour and/or bronze representing designs that would often be applied to the material. Belts painted in tan.

Before leaving this figure, I should mention that the Robin Hood bow should be trimmed down to 13/14 mm from tip to tip, to represent the much shorter bow used by cavalry.

Light Lancer

This is the Airfix horseman in the Arab set as supplied but with the addition of a lance, shield and a scabbard for the sword to be used as secondary armament. The lance is of 1 mm wire 40/42 mm long, and is positioned in a hole drilled through the figure from just inside of the elbow to come out as nearly as possible to the right hand. The shield is of the 'hour glass' type, 8 mm x 4 mm, and shaped as shown in the sketch, with a centre boss of the head of a pin pushed through a hole in the shield and into the figure. The scabbard should be about 9 mm long, and slightly curved as shown, glued to the left-hand side as though suspended from the waist.

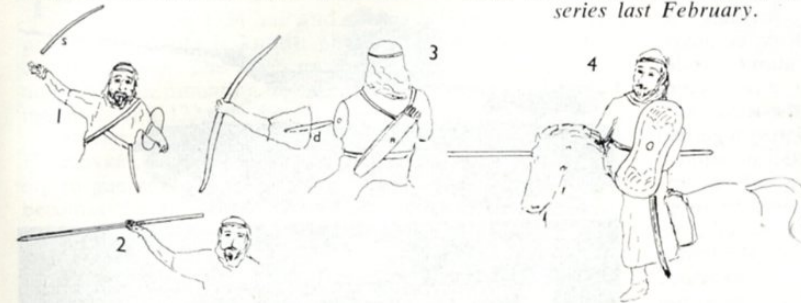
Colouring, again, on this figure, is very much left to choice—light colours as a rule, but with a varying degree of ornamentation depending on the im-

portance and means of the wearer.

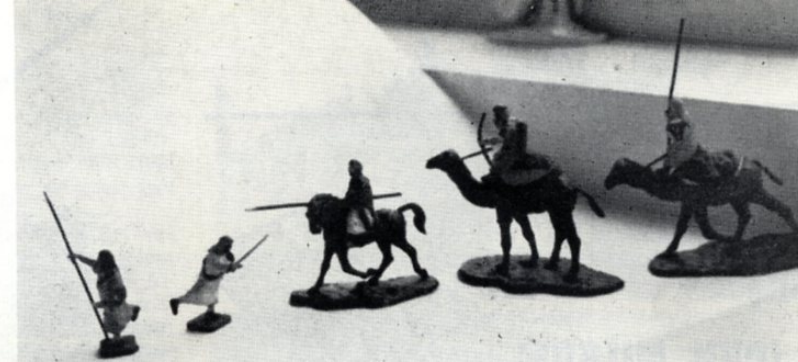
Generally

This does not by any means exhaust the types that can be converted from the Arab set—further conversions will appear later, and as far as armies of the more important Arab kingdoms were concerned, there might also be some cavalry with part armour, and even mercenaries from other places and of different races.

For anyone who has never tried converting OO/HO size Airfix figures before, the simple types I've just described are an ideal introduction to the



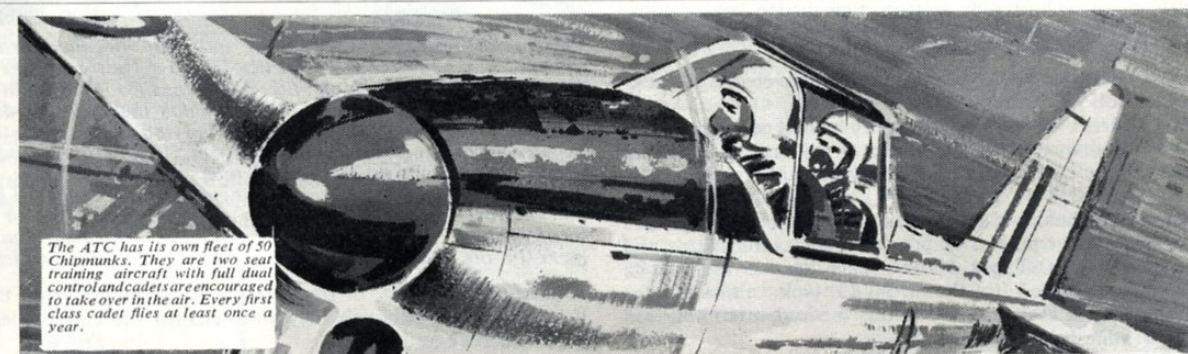
Above: Conversion sketches. (1) Making the swordsman, 's' is suitably bent pin. (2) Spear man. (3) Making the camel archer, 'd' is length of pin. (4) The light lancer. Note the shape of the shield, though this could be any other desired shape. Part 1 of this series appeared in our February, 1968, issue.



Above: Models converted as described here. From Left: Arab with spear, Arab with sword and shield, light lancer, camel archer, camel lancer. The latter was described in Part 1 of this series last February.

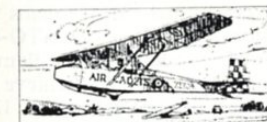
art. With these auxiliaries—who can fight either with or against the Airfix Romans—you are not restricted to specific 'uniform' colours and you can vary them and their equipment (eg. shields) as you wish. Also, because they are simple, quite a large 'army' of Arab warriors can be turned out quickly.

Keep unused parts—the 'disarmed' Robin Hood bowmen, for example—as they may come in useful for other figure conversions, and do all cutting with a sharp blade in your craft knife. Finally, a reminder to scrub all Airfix OO/HO figures in soapy water before you begin work on them; this will make painting very much easier and the paint will adhere more satisfactorily.



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T-34

by

JOHN MILSOM



Part 5: Special purpose variants

SO far as is known, there have been three distinct versions of the T-34 in the bridge laying role, all produced since the end of World War 2. The first was an early Russian type with a rigid ARK type bridge, the second a Russian model with a rigid type bridge launched by pivoting about a roller at the front (designated T-34/MTU), and a more recent type, employed by the Czechs, which retains the turret as a housing for the bridge-actuating motor. This latter type had a folding scissors bridge. The first Russian model mentioned above consisted of a rigid bridge structure which was attached to the tank in such a way as to be able to adopt any required attitude. The bridge could not be removed from the tank and the idea was to drive the vehicle into the trench to be spanned, and to adjust the bridge until it coincided with the two peripheries of the trench, which were not necessarily in the same plane. The second Russian version had a bridge of about 39.5 ft in length, which could span some 37.5 ft, and carry loads up to 40 tons. The bridge was of lattice steel construction and was launched forwards by a single boom. The Czech scissors type had a bridge some 65 ft long when fully extended, was hydraulically operated, and could carry up to 35 tons load.

T-34s were also fitted with various mine-clearing equipments, as follows:

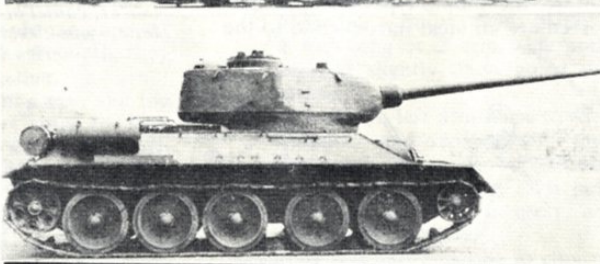
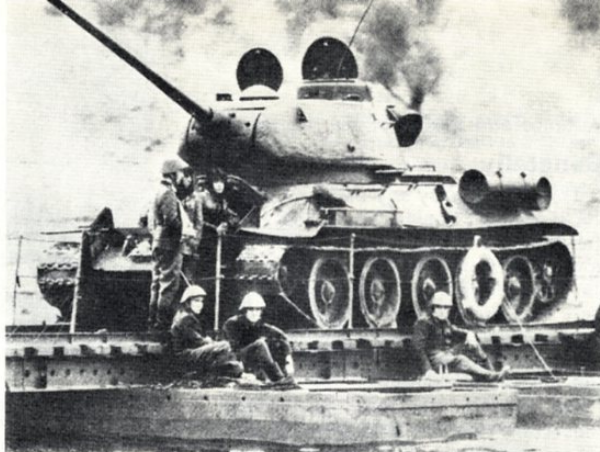
Mine rollers: There were basically two types; one single axle with A shaped beaters attached to the rims of the discs; the other type had a split axle. T-34/85 tanks so equipped were designated T-34/PT-3.

Snakes: The snake is a term generally applied to explosive line charges either pushed or projected across minefields and concrete obstacles. Types of both classification are known to have been fitted to the T-34/85 tank, although the Russians do not seem to favour this method in comparison with the mine-roller device.

Tankdozers: Most models of the T-34 were fitted with either manually or hydraulically operated dozer blades for general engineer work in clearing mines, snow, earth, etc. In such cases the turret and main armament are always retained. These tanks are designated T-34/STU.

Under the conditions of a large tank offensive against a heavily defended position established behind a minefield, the Russians might well drive a battalion or two of conventional gun tanks across a minefield. Although this sounds to be a brutal method of achieving an aim, it will possibly produce less casualties than conventional methods, and most certainly saves a great deal of time.

With the standardisation of the T-34 and KV programmes, flame-thrower installations were designed for both tanks; the T-34 was originally tried out with a type designated ATO-41. Further flame-thrower development was influenced by the policy of the US and British armies, the former preferring the replacement of the main armament by the flame-gun, and the latter insisting upon the retention of the main



Top to bottom: A T-34/85-I of the East German Army shown on a pontoon ferry during Warsaw Pact exercises a couple of years ago. Note the single mushroom ventilator forward of the cupola by means of which the I can be distinguished from the II version. A T-34/85-II showing the twin mushroom vents behind the cupola. Airfix kit is a model of this type. Note the extra fuel tanks on the hull rear. A T-34/85-II with muzzle brake, shown in winter finish. This official Soviet picture is evidently a propaganda shot or a scene from a film since it includes wrecked German equipment in the background—out of period with the vehicle.

armament at all cost; of the two, the Russians preferred the British method, although they were against the employment of towed fuel trailers.

In 1943, under the Allied Aid Agreement, a number of British flame-throwing tanks (Churchill Crocodiles) were shipped to Russia from the PWD (Petroleum Warfare Department, at Langhurst) for training purposes. As the result of the experience gained from the PWD installation in the Churchill tank, the T-34 system was completely redesigned, and the flame-thrower redesignated ATO-42. Tanks so equipped became known as OT-34s (Ognietny Tank 34), and were first employed against the Germans in 1944. The OT-34 carried 44 gallons of fuel in the ATO-42 model (as against 22 in the ATO-41 model) and the flame-gun was operated by compressed air; it could achieve a range of 82-98 yards with unthickened fuel, or up to 120 yards with thickened fuel, under ideal conditions. The flame-gun was mounted in an armoured casting on the right-hand side of the glacis plate, displacing the ball-mounted MG, with 5 degrees of traverse each side of centre. Operation was by electric pump and started by firing a 20 mm cartridge. Ignition was by sparking plug actuating a petrol jet. Six

shots could be fired, each of two seconds duration, and the whole unit was self-contained within the tank. A few experimental models are believed to have been fitted with dual flame-guns mounted on the glacis plate—one on each side of the driver.

In its final stages of use by the Soviet Army, the T-34 was provided with facilities for deep wading. This equipment necessitated sealing the hull and turret components and provision of a breathing tube for the engine and crew compartments. The T-34 was supplied in large numbers to Soviet satellites and other countries in the Russian sphere of influence. Many still remain in Soviet Army service either in reserve or second line use or as the basis of special purpose types.

Self-Propelled Limited Traverse Versions of the T-34

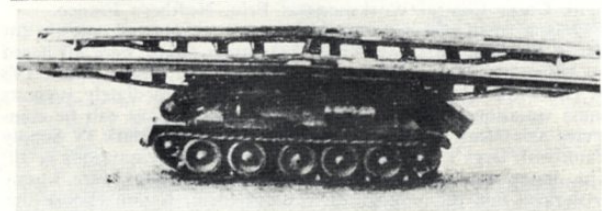
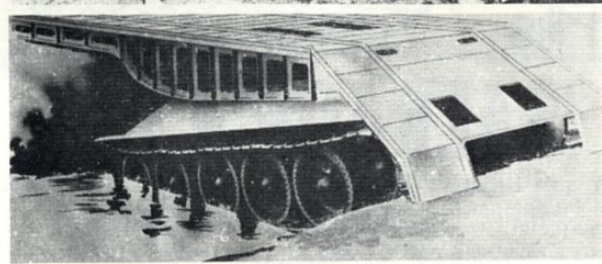
THERE have been three basic limited traverse versions based on the T-34 hull and chassis accepted for quantity production. Little is known about experimental mountings on this chassis. The three models consist of (a) an 85 mm anti-tank gun mounting, (b) a 100 mm anti-tank gun mounting, and (c) a 122 mm howitzer mounting.

Vehicles of this type are designated 'SU' (Samochnaja Ustanovka), or self-propelled gun, and are classified according to gun calibre; thus the 85 mm mounting, for example, becomes the SU-85.

The SU-85: This was one of the initial assault guns produced during the war in quantity production. It was the contemporary of the SU-76 (based on the T-70 light tank chassis) and the SU-152 (KV chassis). The 85 mm gun was an adaptation of the 85 mm AA gun M-1939.

The SU-85 was a self-propelled mounting with the 85 mm gun in a fixed superstructure on a T-34 tank chassis. The vehicle was first observed in 1943 and replaced the SU-76 which proved inadequate in an anti-tank role. When the vehicle was phased out in 1944 it was modified for use by Soviet satellite countries by replacing the original 85 mm AA gun M-1939 with the newer 85 mm gun (D5-S85A). There was no visible difference between the two guns,

Below: A T-34/85-II shown 'snorting' with the breathing tube fixed in the turret roof, which incorporated a special attachment aperture. **Bottom:** The T-34/85 PT-3 mine clearing tank. This roller equipment could also be used with the T-34/76.



Top to bottom: A platoon of T34/85-IIs of the Hungarian Army seen fuelling in the field from a portable pipeline. Note the Soviet-style tank suits and the extra fuel tanks on the hull rear. The earliest type of T-34 bridgelayer had a rigid bridge which could be pivoted to any angle. The vehicle was driven into a ditch and left, as in the British ARK. The second type of T-34 bridge was launched forward over the roller just visible at the front of the vehicle shown.

although the M-1944 had a greater range and greater armour penetration ability. Late in 1944, when the T-34 went over to the 85 mm gun, the SU-85 was replaced by the SU-100.

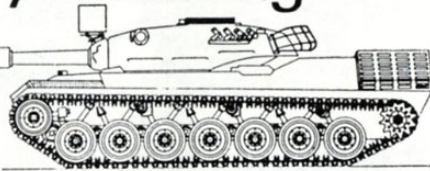
The SU-100: The SU-100 is a further development of the SU-85. The 100 mm gun, which is the same as that mounted on the much later T-54 tank, has a greatly improved performance over that of the 85 mm gun. In addition to the distinctive long gun, the SU-100 is distinguished by the differently shaped mantlet and circular cupola which is attached to the right-hand side of the superstructure. The vehicle first appeared in 1944 and remained the standard support gun for mechanised and armoured divisions until their reorganisation in 1957, when it was replaced by the JSU-122 (A-19S) assault gun carriage on the Joseph Stalin tank chassis. This resulted from the production of the T-54 tank with a 100 mm gun. Obsolete vehicles were consequently supplied to Bulgaria, Communist China, Czechoslovakia, Egypt, East Germany, Poland, Rumania and the United Arab Republic (together with T-34/85 tanks). The superstructure is very similar to that of the SU-85, and the hull, running gear and automotive components are identical to the T-34/85. The armament consists of the 100 mm field/anti-tank gun Model 1944 (D-10S). As with the SU-85, no secondary armament is carried.

SU-122: The SU-122 consisted of the Model 1938 122 mm field artillery howitzer mounted on the chassis of the T-34 tank. It entered service in late 1941 and was replaced by the SU-85 in autumn, 1943. The vehicle was designed to provide artillery fire support to tank divisions and had little effect against armoured vehicles. The general construction and layout of the vehicle was similar to the other two variants.

Military Modelling

by

Chris Ellis



SALVAGE TANK

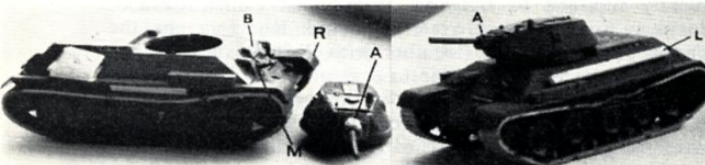
LAST month's LAD half-track conversion suggests a particularly attractive conversion of similar configuration for the World War 1 period. This is the so-called 'Salvage Tank', the very first of the ARVs, which was developed and used by the Tank Corps Central Workshops at Erin, Northern France.

Only a small number of vehicles were so adapted, mostly for use in the tank parks and other rear areas. They were all based on either old Mark IV Supply Tanks or 'war weary' Mark IVs of either the Male or Female variety. This immediately suggests some variations for the modeller. The basic vehicle can be completed as a Mark IV Male, a Mark IV Female, a Mark IV Supply Tank with large sponsons, or a Mark IV with no sponsons at all. This latter was quite common, since the sponsons were simply unshipped and the vehicle ran without them. If you choose this alternative, you don't have to worry about building the sponsons up from plastic card but you then need to put in interior details, including a dummy Daimler engine.

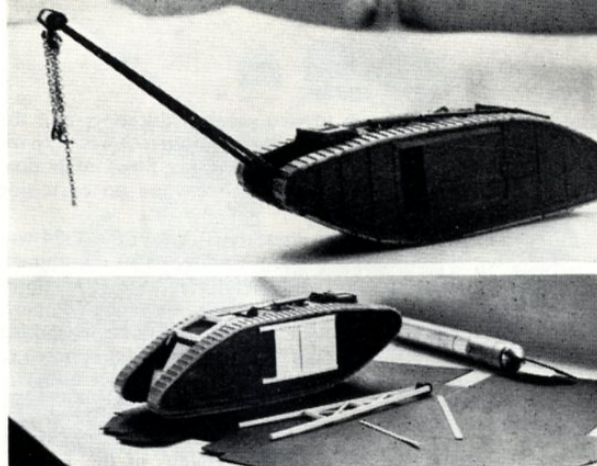
To obviate the need even for doing this, I chose the last alternative of all which entails sliding doors on runners which the Central Workshops put over the sponson apertures of a few of these Salvage Tanks. However, this is getting a little way ahead, and the first task is to convert the basic tank hull from the Airfix World War 1 tank into a Mark IV. This was fully described in the April, 1968, issue, but for those who may have missed this, I'll summarise the work briefly.

Assemble the basic hull without any details, then build up a rear fuel tank with a 10 mm x 17 mm rectangle of plastic card for the base, a 7 mm x 17 mm rectangle for the rear, and a 8 mm x 17 mm rectangle for the top. This is cemented against the hull rear, with the lower edge of the fuel tank level with the hull bottom. A 9½ mm x 11 mm rectangle is cemented above the fuel tank and against the hull rear with the top edge 2 mm below the top of the hull. A stowage tray is built up on the rear sloping panel of the hull top, the full width of the hull, using 3 mm deep strips of plastic card cut to fit and cemented in place.

The exhaust manifold is cemented as supplied, but before affixing it, add an extra strip of 1 mm deep plastic card across the hull top between the second and third exhaust apertures. You then need an exhaust pipe which leads back from the manifold along the hull top, through the stowage tray, and curving down to terminate just aft of the tray. Make this in sections so that



Making a T-34/76B, early production type with short gun. Key: (A) File down mantlet and use two small strips of plastic card to give ridged top; shorten gun. (B) Cement strips over top and front of driver's vision blocks to give single block. (C) Carefully file dustguard to give rounded instead of angled edge. (D) Cut armoured flange from around hull machine gun before cementing it in place. (E) Unditching beam from matchstick; omit rear stowage boxes and fuel tanks.



Views of the Mark IV Salvage Tank, as completed and under construction. Note fuel tank at rear and extended exhaust pipe.

you do not actually need to drill through the stowage tray—just cement sections in place to match up each side. You can use heat-stretched sprue for this exhaust pipe, but I had some old 1:72 scale rocket stems left over from an aircraft conversion, and they are just right for the job.

Now move on to the sliding doors, which are dummy on my model, being just cemented in place. I made mine partly open on one side. Four doors are required, each 15 mm x 19 mm rectangles of card or plastic card. They were either sheet steel or wooden vertical planking on the real thing. If you choose the latter, score them at 3 mm intervals. Steel runners were fitted above and below the openings, and I depicted these with 2 mm deep strips of card, 32 mm long, cemented so that the rear edge is 1 mm forward of the panel line behind the openings.

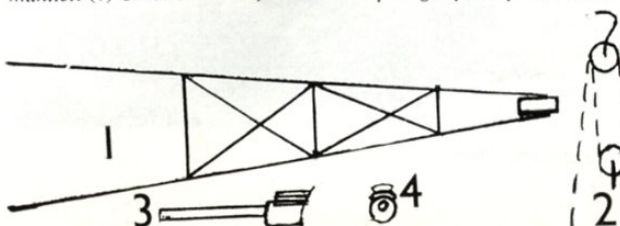
All that remains is the jib, a full-size plan of which is given. I made this up entirely from Slater's Microstrip (available from large model railway shops) which is sliced plastic card. Use the plan and build up the two long arms, with a Churchill road wheel (or equivalent sized scrap disc) as the sheave, cemented solid with the arms. Then build up the cross-bracing from the thinnest slices of Microstrip. The completed jib should be painted before attachment (as should the tank) and it is then cemented inside the front horns, immediately above the track tensioning bolts at 45 degrees. Two guy ropes are then required, taken from the top of the jib to the rear corners of the driver's cupola. Use thin cotton or 'invisible' thread for these.

A Weston purchase was normally used with these Salvage Tanks, and my sketch shows how this can be made. I used two discarded Churchill road wheels for the blocks and fine chain (available from model ship or model railway shops) for the purchase. Use UHU or Sellobond to cement the blocks to the chain. I made up hooks at each end from scrap heat-stretched sprue. I arranged it to hook over the sheave at the top of the jib so that it could be detached and carried in the stowage tray.

This completes the basic model, but you could add tools and plenty of oddments (including a hawser) in the stowage tray. One or two vehicles had a hand winch bolted on the hull roof just aft of the commander's hatch with its whip led forward over the head of the jib. This was unusual, but would make for an imposing model.

The second model this month is a very simple adaptation of the Airfix T-34 to a very early production T-34/76B with the short calibre gun and modified mantlet. Main details are given with the picture and in the drawings, but note that all handrails should also be removed (as on last month's ATO-41 though I did not have space to mention it then). Use a fine file for this.

Key to drawings: (1) Plan of Salvage Tank jib. (2) Weston purchase. (3) Shorten gun for early T-34/76B model and file down mantlet. (4) Cross-section of mantlet. Top ridges from plastic card.



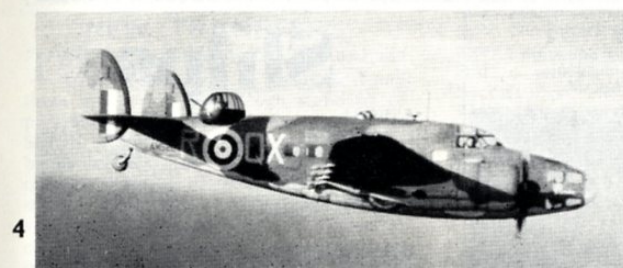
photoPAGE

More rare pictures from readers with captions by Michael J. F. Bowyer. A free Airfix kit is awarded for every picture published, but please note that there is usually a delay of some months before publication due to the limited space at our disposal.



3

Key: (1) Ron Skidmore sent this fine view of a Hampden of 455 Sqn photographed in 1942 when operating from Leuchars with Coastal Command. It retains standard Bomber Command finish with light grey codes. (2) A formation of Liberator 6s of a training unit over India. All have 'SNAKE' painted ahead of their serials. Nearest is Y:EW117. All are in USAAF olive drab/grey it seems, very faded and worn. (3) Aircraft N of the same unit with part of the fuselage side evidently repainted in darker green (or fresher olive drab), also used to obliterate a marking above the tail flash. Pictures by Pierre Schmit.

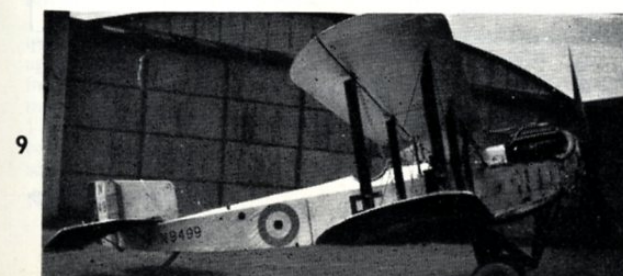


4



6

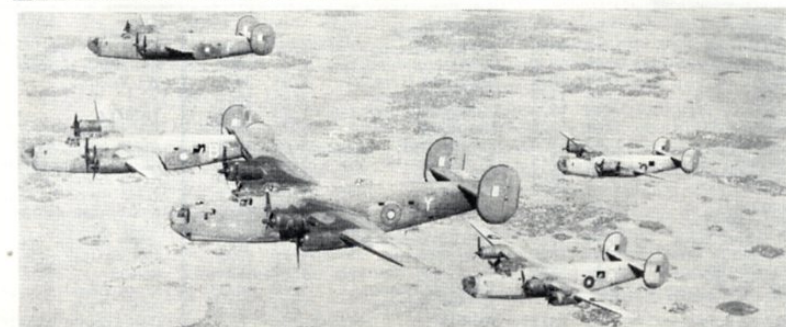
Key: (4) R. Pearl took this picture of R-QX:AM522, a Hudson of 224 Sqn in 1940-41. (5) From Ron Skidmore comes a similar view of a Hudson I ZS-S flying over Tentsmuir on May 15, 1940. Note how the codes partly overlap the roundel. Serial unknown; can anyone identify the squadron? (6) J8634, a Siskin IIIA of No 1 Sqn, RAF, pictured in 1927. Submitted by Ron Skidmore. (7) Belgian reader R. Vanhaezebrouck sent this delightful view of ground crew heaving a Ju 52 along the runway. It's an excellent detail view but we've no other information. Can anyone identify the unit?



9



1



2



5



7

Key: (8) N9717 and another Fairey Dart, pictured at Leuchars in 1925. We've no details of the squadron. (9) N9499-5, a Fairey IIID, once again almost certainly at Leuchars in the 1925 period. Both pictures from Ron Skidmore.



8

MODELLTOYS

PLASTIC KIT SPECIALISTS—ASSOCIATE MEMBER I.P.M.S.

AURORA				MONOGRAM				FUJIMI				HAWK			
Curtiss P-6E	1/48	13/6		P-51D Mustang	1/32	30/9		F-8D Crusader	1/70	13/6		Spitfire Mk 22	1/72	4/11	
SBC-3 Helldiver (bip)	1/48	13/6		P-38J Lightning	1/48	30/9		Bell Huey Cobra	1/48	15/6		W. Lysander	1/48	15/3	
Breguet 14	1/48	13/6		Mosquito II/IV/VI	1/48	30/9		G. Bearcat	1/48	13/6					
Albatross C-3	1/48	13/6		P-51B Mustang	1/48	15/3						AOSIMA			
Pfalz D-3	1/48	13/6		Focke-Wulf FW 190	1/48	15/3		TAMIYA				B. Buffalo	1/72	5/-	
Fokker D-VIII	1/48	13/6		Hurricane II/IV	1/48	15/3		J7W1 Shinden	1/72	4/11		C6N1 Saiun (Myrt)	1/72	5/-	
S. Camel	1/48	13/6		ME BF-109E	1/48	15/3		A6M3 Hamp Mod. 32	1/72	4/11		Ki-100	1/72	5/-	
Albatross D-3	1/48	13/6		S. Spitfire IX	1/48	15/3		Ki-84 Hayate (Frank)	1/72	4/11		A7M Reppu (Sam)	1/72	5/-	
F. Eindecker	1/48	13/6		N.A.T.-28D	1/48	15/3		Ki-44 Shoki (Tojo)	1/72	4/11		M6A1 Seiran	1/72	5/-	
Spad XIII	1/48	13/6		G. Wildcat	1/48	15/3		J2M3 Raiden (Jack)	1/72	4/11		Shiun (Norm)	1/72	5/-	
Nieuport II	1/48	13/6		JU-87G Stuka	1/48	23/3		Ki-61 Hien (Tony)	1/50	12/11		A6M2 Zero	1/72	5/-	
Fokker DR-1	1/48	13/6		P-47D Thunderbolt	1/48	23/3		Ki-43 Oscar	1/50	12/11		Zuiun (Paul)	1/78	5/-	
D.H. Tiger Moth	1/48	13/6		OS2U-3 Kingfisher	1/48	23/3		J2M3 Raiden (Jack)	1/50	12/11		FROG			
Halberstadt CL-2	1/48	13/6		M.E. BF-110E	1/72	15/3		NIK2-J George	1/50	12/11		W. Lysander	1/72	4/-	
Avro CF-100	1/70	13/6		G. F7F-3 Tigercat	1/72	15/3		Ki-100	1/50	12/11		B. Shark	1/72	4/-	
Hiller X-18	1/70	13/6		P-51B Mustang	1/72	10/11		Ki-44 Shoki (Tojo)	1/50	12/11		JU-87G Stuka	1/72	4/-	
LS				G. F8F Bearcat	1/72	10/11		A6M7 Zero	1/50	12/11		F-86F Sabre	1/72	4/-	
A6M2-N Rufe	1/75	4/11		AIRFIX				C6N1 Saiun (Myrt)	1/50	21/-		B. Barracuda	1/72	4/-	
D4Y2 Susie (Judy)	1/75	4/11		A-1H Skyraider	1/72	3/8		F1M2 Pete	1/50	21/-		B. Beaufort II	1/72	4/-	
Oscar Mk 1	1/75	4/11		Henschel H.S.129	1/72	3/8		NICHIMO				Mosquito IV/VI	1/72	5/8	
G3M1 Nell	1/72	24/6		H.S.125	1/72	5/2		S. Spitfire VB	1/70	4/11		F-104G Starfighter	1/72	5/8	
G3M3 Nell	1/72	24/6		HASEGAWA				A5M4 Claude	1/72	4/11		BAC Lightning 6	1/72	6/9	
Ki-109 Fighter	1/72	24/6		G8N1 Renzan (Rita)	1/72	49/11		A6M5 Zero	1/35	23/9		Phantom F4K/M	1/72	6/9	
Zero Mk 21	1/75	4/11		T-38A Talon	1/72	4/11		NIK2-J George	1/35	23/9		A. Shackleton MR 3	1/72	18/11	

MONOGRAM FIGHTERS OF THE THIRTIES

- Curtiss P-6E, 1/72 scale. 10/11.
With decals for 17th Pursuit Sqn.
- Curtiss F11c-2, 1/72 scale. 10/11.
With decals for U.S.S. Saratoga, 1933.
- Boeing F4B-4, 1/72 scale. 10/11.
(Illustrated.)
- Boeing B-52D Stratofortress, 1/72 sc.
With decals for S.A.C. or Vietnam finish, a truly superb model with many special features. £11.19.6

BOEING F4B-4 1/72



Ships

AURORA				IMAI (motorised)			
U.S.S. Benion	1/600	13/6		I.M.S. Chokai	1/550	19/11	
U.S.S. Bainbridge	1/600	13/6		I.M.S. Mogami	1/550	19/11	
U.S.S. St. Paul	1/600	13/6		I.M.S. Myoko	1/550	19/11	
H.M.S. King George V	1/600	18/6		I.M.S. Atagi	1/550	19/11	
Admiral Graf Spee	1/600	13/6					
Type 1X-C U-Boat	1/110	13/6					

ALMARKS DECALS OO/HO Armour Range.

- 2/11 each
- T1. Afrika Korps Palm Tree emblems.
T2. SS Panzer Divisional Signs.
T3. German military vehicle crosses.
T4. British 8th Army, Alamein sheet.
T5. German Tank numbers.
T6. British Armoured Unit sheet.

1/72 Scale Aircraft. 2/11 each

- A1. Luftwaffe Swastikas, fighters and mediums.
A2. R.A.F. "B" Type Roundels.
A3. S.E.A.C. Roundels and Flashes.
A4. R.A.F. Fighters, Sq. Coding, 1939-40, Blue/Grey.

(UK postage: up to 3 sheets, 6d.;
4 sheets and over, 9d.)

BY RETURN POSTAL SERVICE

Postage and Packing
Refer to amount in brackets if 1st class mail delivery required.
Up to 10/-, 1/- (1/6).
10/- to 22/-, 2/- (2/6).
22/- to £5, 5/- (6/-).
Over £5, no charge.

In addition to full ranges of kits, of which we can only list a few, we also have stocks of useful reference books for the modeller, some of which are listed below.

Aircam Aviation Series. 21/- each.
Could be termed photographic albums for the types, including 8 pages of colour side views.
1. P-51D in USAAF/USAF service.
2. P-47 in US, RAF and other Air Arms.
3. P-51B/C and Mustang I-IV in all its many guises and insignia (due mid-November).

Men and Machines Series. 30/- each.
Colour 5 views, specifications, development and operational histories, in hard covers.

RAF Bombers of WWII, Vol 1, covers:
Lancaster 1 and 2, Battle, Mosquito, Boston, Liberator, Manchester.

Luftwaffe Bombers of WWII, Vol 1, features:
Dornier 17, Heinkel 111, JU-88, FW Condor.

NEW KITS AND MODELS

LOCOMOTIVE PRINTS

BEATTIES have sent us samples of a collection of locomotive pen and ink sketches by G. A. Copping. They measure 14½ in x 9½ in and are printed on smooth white paper. There are 105 prints in the complete collection and the first 12 available include the GWR *Great Bear*, LNER A4 *Quicksilver*, SR 'Schools' Class, LMS *Royal Scot*, GWR 'King' Class, LNER *Cock O' the North* and an LMS 8F 2-8-0. The *Flying Scotsman* will be the next to be released. All the locomotives are pictured at rest.

The drawings are well executed, technically very accurate and contain a wealth of detail. They would make admirable subjects for framing. Price 5s each postage extra from Beatties, 5 The Broadway, London N14. N.S.

NEW TRANSFERS

TWO more releases have come to hand from the US firm of Exact-a-cal and these are to the same high standard of presentation as the set for the Airfix SM 79 which we reviewed a few months back. Set No 2 in the Exact-a-cal range is devoted to the Fieseler Storch and presents a sheet of markings enabling the Airfix 1:72 scale model to be finished as either of two Spanish Nationalist aircraft of the Spanish Civil War's famous Condor Legion, an Italian machine in North Africa in 1942, or a German ambulance aircraft in Italy in 1941. The sheet comes in a transparent envelope with a page of tone drawings of each subject, camouflage details, and paint chips giving the exact shades which the modeller needs to match for an accurate finish. In most cases these colours are readily available in the Humbrol, Airfix, or Modelcolor paint ranges. Set No 3 gives all necessary markings for two different Condor Legion Me 109Es in both 1:48 and 1:72 scale, being intended for the Monogram and Revell kits of this aircraft respectively. Included in this set are the walkways for the wings and the black panels which were painted on the lower fuselage sides of these machines. Once again scale tone drawings, notes, and colour chips are given. The black and white parts are printed separately for application one over the other, thus obviating registration problems.

Price of each set is \$1.50, which is not quite so expensive as it sounds when you appreciate that four models can be finished from each sheet. Not everyone models to 1:48 scale, but even so the 1:48 scale Spanish Me 109 markings could come in useful for larger 1:72 scale types. These Exact-a-cal sets are

available by post from Exact Scale Hobbies, 97 James Street, Bloomfield, NJ 07003, USA. Postage extra. C.O.E.

NEW FROM BLICK

BLICK, who produce the sheets of dry print transfers for modellers, have now produced a new large sheet for model makers which matches the size and price (2s 3d each sheet) of the standard Blick lettering sheets. Gold, white, black, orange, yellow, red, and blue colours are available and each sheet includes two styles of lettering and numbers in 1/16 inch and 1/8 inch depths, with lining stripes in widths of 1/64, 1/32, and 5/64 inch. More than 6 feet of lining stripes are included altogether on each sheet when the individual lengths are totalled up. This sheet, reference number BOE 59, is ideal for just about all model subjects since the lettering styles are suitable for most needs in the way of serials, names, and so on. The lining is just right for aircraft cheat lines and locomotive lining, funnel bands on ships, and so on. Well worth having, this. Under reference number BOE 60, Blick have another sheet for modellers in the same range of colours. This one has much larger numbers only, wider lining stripes, plus plain discs in various diameters. This sheet will mainly appeal to car and slot-race model fans, since the numbers are ideal for the scales involved. The smaller discs, however, would also make excellent camera ports and the like for 1:72 scale aircraft models. Again, this sheet is well worth a glance. Price is 2s 3d. Your local stationers or model shop should hold stocks—if not, ask them to get some of these useful and modestly priced sheets. C.O.E.

VINTAGE CARS

WE have remarked before that the modeller in the popular OO/HO and 1:72 scales is not well served with vintage transport models to match. A range of models which we recall from years ago has now re-appeared from Traction Engine Enterprises Ltd and should be useful raw material for anyone needing vintage miniatures. We say this because, quite frankly, these are crude by the standards of anyone used to Lesney and Corgi die-cast models. The range of four cars we've had for review lacks such refinements as headlights and steering wheels and the castings are crude, but acceptable. Two of the models, which are



nondescript, but resemble a Hupmobile and early Chevrolet quite well, are to OO scale, and the other two, which look like a Sunbeam tourer of 1920 vintage and a Commer/Napier type wagonette of about 1910 would be more acceptable in TT (1:100) scale we think. As we said, they need working on to add detail, but suitably doctored and repainted they will be useful to railway modellers or even military modellers requiring World War I period transport. Price is 2s 6d each, and they can be had from Traction Engine Enterprises Ltd, 4 Station Road, London E4. C.O.E.

FLOQUIL RELEASES

FROM Victors Ltd, 75 Chapel Market, London N1, we've had copies of two useful little publications put out by Floquil, the big US paint makers. First of these is called *Painting Miniatures* and is priced at 8s. It goes into just about all aspects of the subject in great detail and in a most interesting way, with special reference, of course, to Floquil paints. Most Floquil paints are made for model railways and the book tends to emphasise this aspect, but not unduly so.

The second book is called *Painting Plastic Miniatures* and costs 2s 6d, but comes complete with some useful sheets of colour standards for various nations. Some of the material in this second book is the same as in the first, but there is extra material telling how Floquil should be applied to plastics—it needs to be treated with caution, see our Floquil review of July, 1967—and interesting items on weathering and mottling. Both books are well worth reading. C.O.E.

NEW ALMARKS

LATEST issues of transfers from Almarks will fulfil many needs, since they include both British and German armoured unit markings and pale grey fighter squadron codes for the RAF of the 1939-40 periods. This useful new RAF squadron codes sheet contains 100 letters in two styles—rounded and squared off—and all are 3/8 inch deep, just right for Spitfires, Hurricanes, Defiants, and the like. This new set costs 2s 11d and once again is just what aircraft modellers have needed for ages. Finally, we'll remind those readers who ask us for a source of swastika transfers that they are also admirably catered for now by sheet A1 in the Almarks range which has an abundance of them in all styles for 1:72 scale, again at only 2s 11d the sheet.

The military sheets are T4, Alamein
Continued on next page

246 Kingston Rd Portsmouth

Tel • Portsmouth 61469

New Kits—continued

units, a selection of formation signs including 8th Army, 7th Armd Div, 51st Highland Div, and LRDG; T5, Armoured Divisions, including RAC flashes, bridge plates, squadron markings, and 1st and 6th Armd Div formation signs; T6 German tank numbers in red and black, with small numbers for turret rears. These are all to OO/HO size and just what military modellers need at 2s 11d a sheet, from most model shops.

More inexpensive transfers in the Hales range have come to us from Jones Bros Ltd, 56 Turnham Green Terrace, London W4. These are (1) a small sheet of German crosses and swastikas, plus other assorted items like mission tallies, chevrons, Werke Nos (one pair only), and a pair of 'skull and crossbones'; (2) a small sheet of British C type and post-war style roundels, plus a pair of serials, a pair of prototype 'P' emblems, tail flashes, and a length of red/yellow small checks; (3) a US sheet with post-war style stars-and-bars, buzz numbers, 'P' emblems, and 'Army' and 'Navy' legends, plus tail flashes of the pre-1940 period; (4) a small sheet of Polish and Soviet emblems plus an 'Aeroflot' emblem and 'CCCP' lettering. These are all rather old-fashioned in

style with shiny finish and—in the case of the RAF sheet—rather bright colours, but they would all be very useful particularly as most of the markings are about 1:72 'bomber' size, still not widely available elsewhere. The 'P' emblems and the markings on the US sheet are most handy, while if you fancy a Soviet C-47, the stars on the Russian sheet should be just about right. These are worth having at only 6d a sheet. Send an SAE with your order. Also available from Jones Bros are the old Yeoman ½ inch letters in red, blue, yellow, black, or white, at 4d a sheet. C.O.E.

RUB 'N BUFF

JUST how to get a 'natural metal' finish for plastic aircraft models has led to solutions ranging from painting with the silver in Humbrol's Railway Enamels range (very good, in fact) to applying baking foil or Metalskin. Another American product we've just been trying is Rub 'n Buff, now being imported by Aviacolour, 466 Eastern Avenue, Ilford, Essex, at 11s 6d per tube. For your money you get a tube rather like a tube of toothpaste and the silvering material is in liquid form. It is applied with the tip of a cloth over any surface (wood or plastic) you wish to coat, spread thoroughly, and left to dry. After

this it can be polished up (or 'buffed' as they say) with a clean cloth to give a surface very like natural metal in appearance. It is most effective and well worth trying if you can afford it. We recommend practising on a piece of scrap plastic first, however, to get the application technique mastered. It is essential to have a perfectly clean grease-free surface before you try applying the Rub 'n Buff, and it is most essential to have eliminated any unwanted join lines completely before application; otherwise they will show only too clearly through the newly silvered surface. Aviacolour can supply Rub 'n Buff by post, and they are also UK stockists for the very large 'Official' range of paints which includes some useful shades not available elsewhere. Aviacolour can send a free list of these to anyone who sends a SAE. C.O.E.

LATEST DIECAST MODELS

Finally, a 'must' from Lesney for old-timer car fans in the shape of a new and beautiful replica of a 1912 Rolls-Royce to 1:48 scale in the 'Yesteryear' range. In silver-grey and maroon with plated parts it needs only a few details (like the folded canopy) picked out with paint to put it in the showcase class. Snap it up for its modest price of 5s. C.O.E.

Fighting Colours—from page 120

Sqn	Unit letters	Type	Serial	Notes
60	MU	Hurricane II	LE354:M	Mk. IIC listed
		Thunderbolt	KL859:T	in use 7.45
67	RD	Buffalo	W8280:U	
		Hurricane II	BN871	
		Spitfire VIII	JG183:S	
79	NV	Hurricane IIC	BN569	
		Thunderbolt I, II	?	
113	?	Hurricane II	?	
		Thunderbolt I, II	HD173:N	
123	XE	Hurricane II	BP114	in use 6.43
		Thunderbolt I	HD106	in use 12.44
		Thunderbolt II	KJ241	in use 3.45
131	NX	Spitfire VIII	?	
		Thunderbolt II	?	
134	?	Hurricane IIA/B/C	BN957	
		Spitfire V/VIII	JK118	in use 7.43
135	WK	Hurricane I, II, IV	?	
		Thunderbolt I	HB975:L	
136	HM	Hurricane II	?	
		Spitfire VIII	MT507:B	
		Spitfire XIV	RN193:A	
146	GQ ?	Buffalo	AN124	
		Hurricane I/II	BN927	
		Thunderbolt I, II	KJ330	FL793 Mk. 1
155	DG	Mohawk IV	BS798:B	in use 1943
		Hurricane II	HW420	in use 11.43
		Spitfire VIII	?	
258	ZT	Hurricane IIA/B/C	?	
		Thunderbolt I/II	HD185	in use to late '44
261	FJ	Hurricane II	AP935:A	in use '44 to 8.45
		Thunderbolt II	KL849:G	few used
273	?	Fulmar	X8773	
		Hurricane I/II	?	in use 1944
		Spitfire VIII	?	
607	AF	Hurricane	?	
		Spitfire VIII	JF781:P	in use 1944
615	KW	Hurricane II	HV828	Mk. IIC
		Spitfire V/VIII	JL108	Mk. V given
		Thunderbolt I/II	?	

As can be seen there are more gaps existent in the tabulation of the Far East squadrons for less material has survived from this area. Readers' confirmed additions would be welcomed.

Michael J. F. Bowyer

New Books—from page 121

splendid pictures which include such rarities as a Tiger Moth, Oxford, and B-17, all used as 'backs' by the Group at various times. The other types portrayed are, of course, the Group's main steeds, P-47s and P-51s.

Tin Goose is a fine account of the Ford Trimotor with numerous rare pictures and detailed text which brings the story right up to the current Bushmaster derivative of this immortal aircraft. Required reading for anyone going in for conversions or modifications of the Airfix Trimotor kit, it includes plenty of detail views and markings. The last book in this group gives the usual 'Aero' series treatment of the Fw 190A, complete with some colour drawings. Plenty of detail pictures, but not such a 'good buy' as the rest in our view.

Interesting Branch

THE TANAT VALLEY: ITS RAILWAYS AND INDUSTRIAL ARCHAEOLOGY, by Wilfrid J. Wren. Published by David & Charles (Publishers) Ltd, South Devon House, Railway Station, Newton Abbot, Devon. Price 42s.

THE River Tanat rises in Wales in the Berwyn Mountains and flows east through Montgomeryshire into Shropshire and the Severn basin. The first part of this book describes in detail the preparation, construction and working of the Tanat Valley Light Railway (opened 1904, absorbed into the GWR in 1923 and closed in 1960). The second part deals with the industrial archaeology of the valley and describes the lead, slate, phosphate and granite workings which for centuries had been the main industries. Several suggested tours of the more interesting remains are included.

The author has been extremely thorough in his research, covering every conceivable aspect of the subject and the presentation is first class. Numerous sketch maps, diagrams, tables and an excellent selection of photographs illustrate the text. Some of the photographs go back to GWR days and beyond, and others illustrate railway, mine and quarry remains still visible today. By being so thorough the book will have a very wide appeal. Model railway enthusiasts particularly will find much useful material in the track plans and descriptions of the trains.

AIRFIX magazine

Letters to the Editor

Squadron identified

THE photo on the front cover of the July issue was terrific! Let's have more like it. Regarding the Beaufighter VIFs in the same issue, these are possibly from 19 Sqn SAAF who used this marking style on their aircraft. Colours were dark green and dark sea grey with Sky undersides, white identification letters, and C Type roundels on the wings. The squadron later used the Beaufighter X. D. Becker, Port Elizabeth, South Africa.

'Benledi'

I READ with interest the review of the new Benledi kit. You said that research was necessary to get the right shade of grey for the hull, and for making the other ships in the class.

The hull colour is a very light shade of grey and can be mixed perfectly by mixing Airfix dark grey with matt white in the proportion 4:3. This makes a remarkable likeness to the actual shade. To make *Benledi* into either of her sister ships, *Benirgris* or *Benalbannach* the main change is to omit the topmast from the after polemast.

Ian Cochrane, Redcar, Yorks.

Fuselage bracing

HAVING recently received the May issue of the magazine, I studied the article on Wellington conversions and prepared a method for introducing the side windows. Pieces of stiff wire are used for bracing.

The wire is bent to the internal fuselage contours and several pieces are used on both the upper and lower fuselage. These are cemented to the interior with any all-purpose adhesive (I used Araldite) and the ends of the wire are made level with the upper and lower edges of the windows. The wire eliminates the springy nature of the fuselage. With the interior detailed and painted, the wires are not obtrusive. The effect is more rewarding and authentic than using block transfer sheet.

Robin Green, Melbourne, Australia.

Slave carrier

I HAVE never seen a reference in AIRFIX magazine to the 'Slave Carrier' which was an ordinary Universal carrier adapted to carry batteries to charge the batteries of tanks. These were definitely used to charge Churchills and were a part of HQ squadron. Externally the only differences between these carriers and the one from the kit are the different front mudguards, a pattern for which is shown in the September, 1964, edition of AIRFIX magazine.

A canvas tilt is also required, made from tissue and wire. This is in two parts, one over the hull top and one for the driver's compartment. A template for the wire frame was shown in the December, 1964, edition for the Carrier Ambulance. The flaps on the rear of the tilt and the cover for the driver can be represented by tissue rolled up in a 23 mm length.

November, 1968

Letters to the Editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit of their choice. We are always pleased to receive your comments and pictures, which will be considered for publication. Submitted material and pictures can only be returned if accompanied by a stamped addressed envelope, and the Editor cannot accept responsibility for safe keeping of any such contributions, neither does he necessarily agree with comments expressed by correspondents in the letters columns. Please note that any letters anticipating a reply MUST be accompanied by a SAE or stamp.

A small addition that can be made to any carrier is a small mirror ½ inch from the hull side for the driver, mounted on a piece of stretched sprue or wire 5 mm long. The mirror can be made from a rectangle of Perspex 1 mm x 3 mm, painted on the back first silver then dark green. Headlights can also be positioned against the hull front above each mudguard instead of the position shown in the kit.

Clive Darke, Fishponds, Bristol.

Simulated tracks

I BELIEVE many readers may be interested in my method of depicting tank tracks on a modelling baseboard. Any glue may be used, and is spread in two parallel lines, the width of the track, at a depth of about 1 mm. It is now left until it becomes tacky but not hard. The track is then placed on the glue, which is allowed to harden. The track is then peeled off, leaving a very realistic track impression. If the tracks are carefully placed in line, a long tank track stretching across the baseboard is really effective. The track impression is then painted a dark earth colour.

Wheeled vehicle tracks are equally well depicted by putting a length of wire through the wheel and running it through the tacky glue. Obviously you have to use tank tracks of the desired type before putting them on the Airfix model.

M. Walton, Carshalton Beeches, Surrey.

Narrow Gauge Club

WE read with interest the recent articles in the magazine on the subject of Narrow Gauge modelling. Other readers might be interested in a society now formed for enthusiasts in this branch of the railway world. The Lewisham and District Narrow Gauge Society, as we are called, would be pleased to hear from fellow Narrow Gaugers interested in us, to whom there will be an invitation to our first meeting in the near future.

Those interested please write direct to the Hon Secretary:

D. A. Brewer, 4 Prior Street, Greenwich, London SE10.

'Puff' points

AN article in your July, 1968, issue on 'Puff the Magic Dragon' contains a slight error which I would like to com-

ment on. In this article the gunship versions of the C-47 are referred to as both AC-47 and FC-47. Only the AC-47 designation is proper. While an extremely minor point, I feel the usual regard of your magazine for historical accuracy demands my comment.

In addition to my connection with CAHA, I am a USAF Reserve Officer with duty at Wright-Patterson AFB, and (in my civilian occupation) an Aerospace Research Engineer. Thus, I often have access to (unclassified) official material normally not in the public domain. This includes owning a copy of AFR 66-11, the 1962 Air Force Regulation that established the DOD-wide present standard designation system. This Regulation would countenance the designation AC-47 but forbid FC-47. In addition, the Regulation requires that a book be issued semi-annually listing all aircraft in the current inventory by their correct designation.

I have copies of three such semi-annual books, and have spot checked others covering the period 1966 to present—my July, 1968, issue arriving yesterday. According to these, the USAF has never officially recognised the FC-47 designation. In the early days of 'Puff' operation, some local correspondence referred to the planes incorrectly by the FC-47 designation and some individual crew members may still do so—but officially 'thar warn't none'. The fact that the Super-Puff programme using C-119 and C-130 aircraft uses the AC designation lends support to my assertion. Of course, they could change this any time, but up to July, 1968, they had not done so.

H. L. Elman, G'astonbury, Conn, USA.
Robert C. Jones writes: *While Larry Elman is strictly correct in what he says in his letter, nonetheless a lot of US aviation magazines and many 'Puff' crewmen all refer to this aircraft as the FC-47, popular usage if not official usage.*

Rhodesian Harvards

FOR one who was a pupil pilot at No 22 SFTS, Thornhill Air Station, Gwelo, Southern Rhodesia, in 1945, your cover illustration to the September issue brought back many pleasant memories, and I shall be pleased if you will permit me to offer some comment on the caption thereto.

The formation is of aircraft of No 20 SFTS, Cranborne Air Station, Salisbury, Rhodesia, all of whose 80 or so Harvards carried individual identification numbers (not squadron numbers) in red, and in the American style shown. The illustration does not show the display on the upper surface of the mainplanes where this identification number was repeated in the same colour and style, but using the full chord, and the full width of the yellow stripe (or the equivalent on all-yellow aircraft). The wing numbers were applied so as to be read in a similar manner to the under-wing serials, ie, starboard—read from the rear, port—read from forward.

Continued on next page

Letters — continued

To distinguish between the two single-engined schools, the Harvards of No 22 SFTS carried black identification numbers: these were of British style with rounded corners, were only some 75% of the size of No 20's numbers, and were displayed forward on the fuselage so that the rearmost figure of a pair was immediately abreast of the forward pilot's position. The number was not repeated on the mainplanes of this school's aircraft, and examples of individual aircraft were Harvard II—all yellow—AJ628:63 and Harvard IIA—natural finish/yellow—EX246:69.

Harvards on the strength of the Rhodesian Air Training Group's Central Flying School carried the school crest in the position occupied by the numbers on No 22 SFTS.

Every aircraft which I saw in Rhodesia from February, 1945, until the training group was disbanded carried Type C roundels (including the mainplane upper surface position) and fin flashes, and not the Type A variety as illustrated, so, as Professor Joad would have said, it all depends on what you mean by 'just at the end of the war'!

Apropos the article on the P-38 Lightning conversion in the same issue, and more especially to the reference to the RAF examples having been handed over to the US 8th Air Force, it may be of some interest to report the personal observation of an airworthy Lightning in PR blue, and sporting RAF PR roundels, parked alongside a similarly finished Airspeed Oxford in a hangar at RAF Coningsby, in December, 1944, which station was, at that time, the home of Nos 83 and 97 Squadrons, No 5 Group, Bomber Command. I was given to understand that the Lightning was used by the Squadron COs to observe and direct the daylight formation flying practices of their squadrons. Perhaps another reader can provide the serial of this particular aircraft?

G. M. O'Connell, Hull, Yorks.

M. J. F. Bowyer writes: *The P-38 note is interesting. No 192 Sqn operated several from Foulsham late in the war—perhaps it was one of those.*

The Harvard picture was taken, I think, in 1943.—EDITOR.

Track treatment

In your articles on conversions of AFVs you have suggested using a strip of plastic card between tracks and covers to achieve sag on tracked vehicles. May I suggest another method. Using thin acetate sheet obtained from an orchid box (enough for dozens of models) or similar, cut a strip slightly less than the width of the track, and about $\frac{1}{4}$ inch longer than the centres of the front and rear sprockets. A $\frac{1}{4}$ inch from one end, bend the strip at right angles, then at about $\frac{1}{4}$ inch centres bend at alternate right angles until the strip is like this:



Now trim to length and insert between track and cover. A little experimenting with the actual amount of bending required for a particular model is but a few minutes' work. The strip is almost invisible on completion.

F. Blount, Luton, Beds.

Making canopies

I AM intrigued by the lengths resorted to by your contributors in their modification of plastic kits. Cockpit covers are a particular problem and I've even seen letters advocating multiple kit purchase simply to obtain extra cockpit covers.

As a veteran of the pre-plastic kit days, I faced this problem many times—perhaps readers would be interested in an unusual solution?

The method can be used for the most complex transparencies and involves sheet gelatine (obtainable at most butchers' shops!). A male mould is required but it can actually be built on the model. Candle-wax is ideal, if the mould is made of wood, the wood should be waxed. The sheet gelatine is soaked in water until it becomes pliable and is then stretched over the mould, being held by elastic bands and/or clothes pegs until dry. When dry, the gelatine should be given a coat of clear varnish, and when this has dried it may be trimmed with a razor blade and simply lifted away from the mould. The resulting transparencies are beautifully clear and thin but they are slightly brittle. This method has been used successfully to produce the 'glazing' for a Hampden, a Halifax and a He 111 (built 'from scratch', not from kits).

Sqn Ldr D. B. Thomas, Upwood, Hunts.

Copydex

MR PARTON, writing in the September, 1968, edition, mentions a use for Copydex externally on models. It can also be used internally in ship models to glue the hull together and at the same time, if spread around the hull, can make it watertight. One can paint over it, but it makes an extremely matt finish.

It also can be used to glue the various parts of Airfix soldiers together in conversions.

Simon Crome, London SW3.

Colour schemes

READING part 10 of 'Fighting Colours' caused me to look out some old wartime notes, and I find that, in September, 1943, in the Lossiemouth area, I saw several rocket-armed Beaufighter Xs with white under-surfaces and sides. One, which had no code letters, was serial LZ792. Others which I saw at the same time, with grey/green top and sides, were a definite blue underneath.

A Beaufighter II which I saw at Forres in that month, with grey/green top and sides, bore the red letters LX-A.

Going further back, a Blenheim IV fighter which I saw in February, 1942, had Sky under-surfaces (the real 'green' shade) and 'off-white' code letters J-XA on the port side.

My notes also show that in August, 1942, several Spitfire Vs were to be seen in the east of Scotland, sporting tropical filters and desert colours!

Alex Tough, Newport-on-Tay, Fife.

M. J. F. Bowyer writes:

An interesting letter, for it confirms that some Coastal Command strike aircraft other than Hampdens and a few Beauforts of the 1943 vintage had white under-surfaces and fuselage sides. Nevertheless, these must be considered exceptions to the usual. Confirmation of the deep blue finish is interesting, too. There would seem the possibility that this colour was applied for a brief period as toning

better with the light during operations off Norway.

The LX coded Beaufighter II came from No 54 OTU which trained night-fighter pilots on Beauforts, Beaufighters and Mosquitoes. The letters ST and YX were carried by other squadrons within the OTU.—EDITOR.

Lubrication

WHY apologise for increasing the price of your magazine, even at 3s it would be a bargain. In the September issue, P. E. Lawson complains that oil eats away the paint and cement. The way to overcome this is to substitute Vaseline for oil on stiff joints.

Trevor Hartley, Sunderland, Co Durham.

MY own model Beam Engine has worked well for over a year now (often demonstrated to visitors). Due to the friction between two plastic surfaces some lubrication must be used. Vaseline is satisfactory but a light multi-purpose '3-in-1' oil has been my own lubricant. I have noticed no damage to the plastic and the oil streaks and dust film that adhere to it, adds (in my opinion) greatly to the realism.

John Thompson, Wisbech, Cambs.

Moving parts

IN the September issue, Mr Lawson gave a warning about the use of oil for lubricating moving parts on Airfix models. To prevent such sticking, the moving parts should be treated before assembly as follows.

Firstly, all the joints should be cleaned of flash. They should then be washed in a mild detergent solution to remove any grease and dirt. When this has been rinsed off, the moving parts should be treated with anti-static fluid (α -dihydroxyethane). This is available from photographic dealers, either as a fluid or in the form of a cloth impregnated with the fluid. The use of this helps to prevent the build-up of charge on the plastic, which attracts dust and other small particles to the surface of the plastic. Finally, all parts are 'plated' with graphite by rubbing them with a softish graphite pencil. This requires some patience, as it takes time to achieve satisfactorily.

Some care should be taken with painting, and it is probably best to paint areas near moving parts before assembly.

Incidentally, you wrongly captioned the drawing of Blenheim IVF V5736 on page 473 of your August issue. QY was the code of 235 Sqn, not 254.

Malcolm Oliver, Ruislip, Middx.



Reader J. N. McFarland sent us this view of Auster Mk 9(M) with Lycoming engine and other modifications described in our September 'In the Air' feature. Owned by Major Somerton-Rayner, it is registered G-AVHT and retains service markings and camouflage.

AIRFIX magazine

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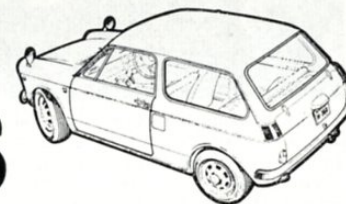
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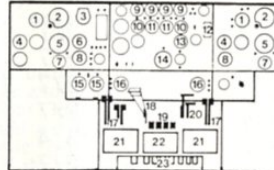
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The small picture shows an essential part of the simulator. A relief model of the Brize Norton area, where the simulator is, with the airfield complete with landing lights in the centre. A colour TV camera

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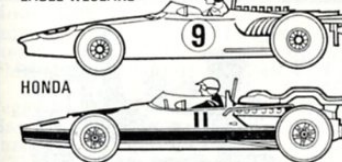
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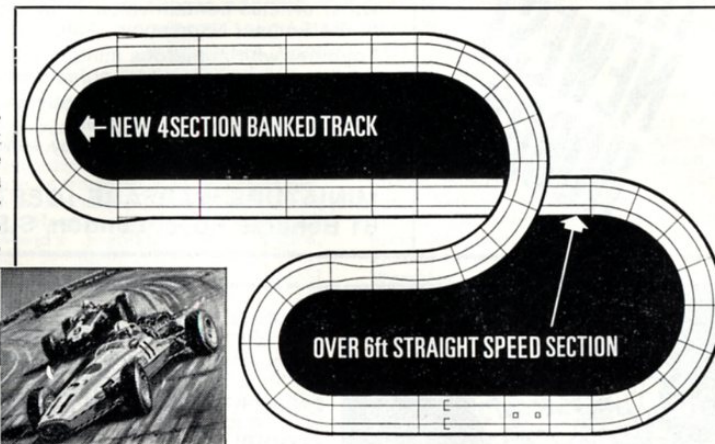
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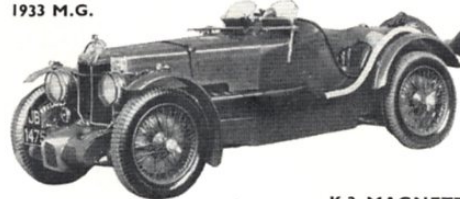
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